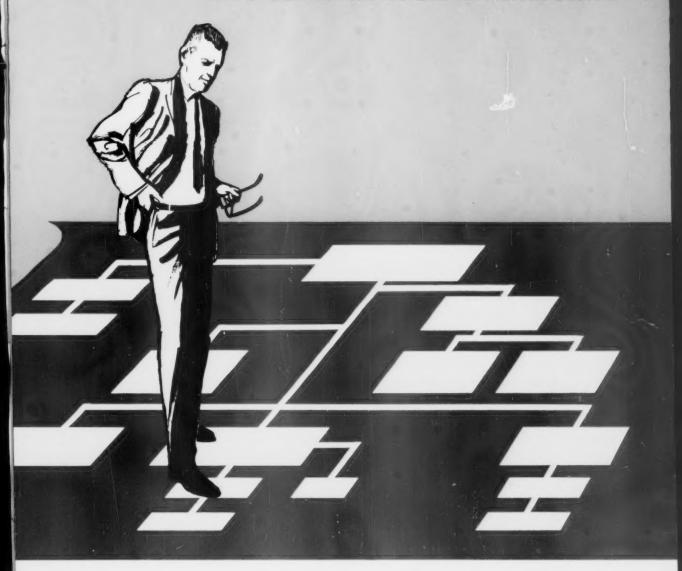
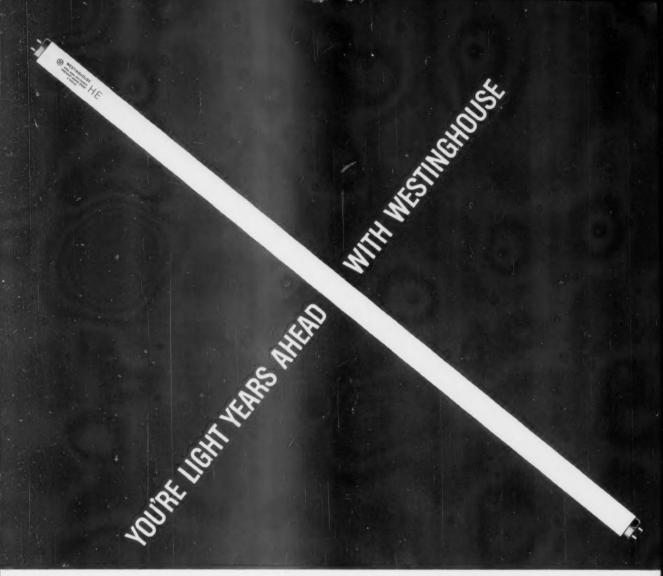
JUNE 19, 1961 PURCHASING



Materials Management

Who should get the job? How P.A.'s handle it The small company approach

Start p. 70



NEW WESTINGHOUSE HIGH-EFFICIENCY LAMPS GIVE YOU 1/3 MORE LIGHT AT NO EXTRA COST AND YOU DON'T HAVE TO CHANGE FIXTURES!

Now you can increase lighting levels without changing a single fixture... without increasing power costs... and without paying premium lamp prices. New Westinghouse "High Efficiency" fluorescent lamps give you a full third more light than daylight lamps... and 15% more light than cool white lamps... without consuming an extra watt of power!

"H.E." lamps are so new even the color tint is different—and only Westinghouse has it! A special blend of phosphor particles coating the inside of each lamp provides the higher lumen output... with a pleasant and restful green tint. Users everywhere feel this new green-white light gives a softer, more comfortable light ... the most efficient working light yet. Try "H.E." lamps in an entire area. If you don't agree that they provide the most efficient light ever, we will gladly exchange them for any Westinghouse fluorescent, any color shade, of your choice!

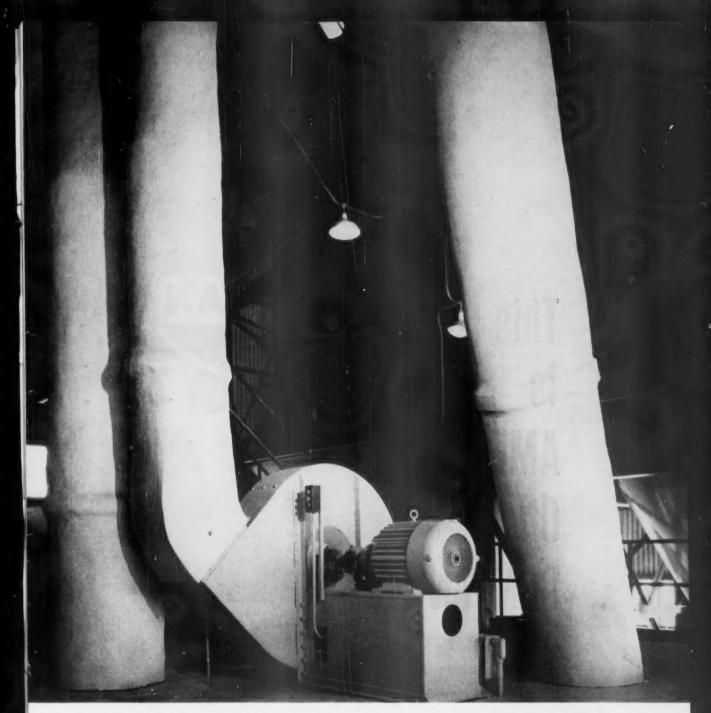
With "H.E." and other Westinghouse lamps, the Westinghouse Lighting Cost Reduction Plan gives you one or more of these benefits:

- 1. Reduced cost of lamp purchases!
- 2. Reduced lamp replacement labor costs!
- 3. Increased lighting level for the same or lower costs!
- 4. More efficient use of power!

Order new Westinghouse "H.E." lamps today and get more information on the Lighting Cost Reduction Plan from your authorized Westinghouse Lamp Agent or your nearest Westinghouse Lamp Sales Office! You can be sure...if it's Westinghouse.

Westinghouse **W**

Westinghouse Lamp Division, Westinghouse Electric Corporation, Bloomfield 2, N.J.



CENTURY MOTORS DRIVE PULVERIZING MILL VENT FANS

At a plaster board plant in Georgia, Century motors are providing dependable power to drive two large vent fans on roller-type pulverizing mills. The mills crush walnut-sized rock into talcum-like powder for the manufacture of dry-wall panelling and plaster.

Two Century 30 horsepower, totally enclosed, fancooled motors drive the vent fans. These fans provide critical air circulation for separating air from the finelyground powder in the cyclone. The high reliability of the Century TEFC motors helps insure the availability of these important vent fans.

For applications where abnormal quantities of dust, grit, oil or chemical fumes are present, Century TEFC motors are ideal. Their totally enclosed, fan-cooled feature makes them dust-proof, cuts maintenance costs.

Century Electric application engineers have years of experience in applying the right motor for the job. This is your assurance of getting *more* than just a motor.

CENTURY ELECTRIC COMPANY

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Century 60-7

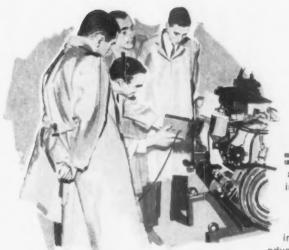
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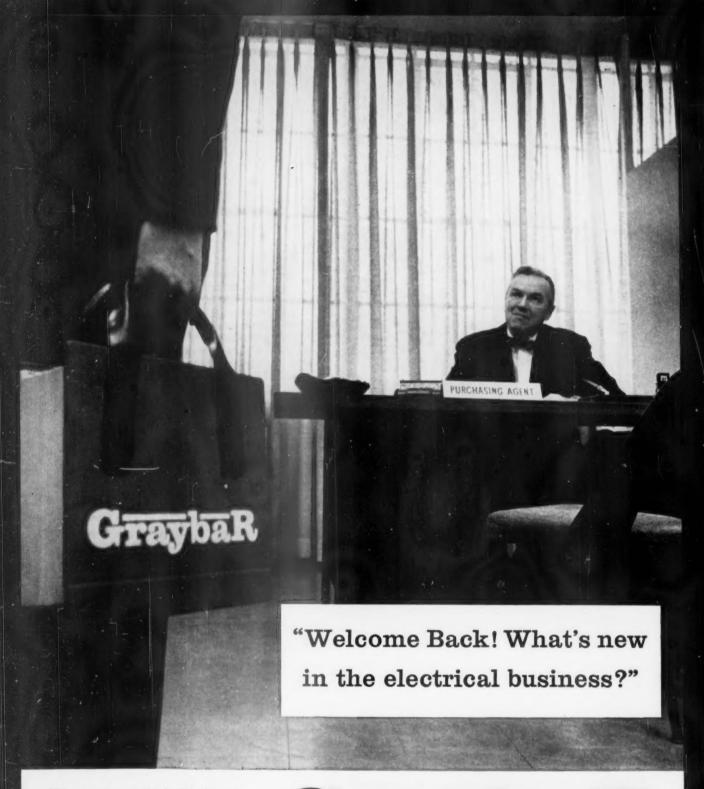
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The Methods and News Magazine For Industrial Buyers PURCHASING

JUNE 19, 1961 VOLUME 50, No. 13

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CONOVER-MAST PUBLICATIONS, INC. EDITORIAL AND EXECUTIVE OFFICES, 205 EAST 42nd STREET, NEW YORK 17, NEW YORK 1961 by C-M Business Publications, Inc., PURCHASING is published every other Monday by C-M Business Publications, Inc., subsidiary of Conover-Mast Publications, Inc., at 440 Post Road, Orange, Conn. Editorial and executive offices, 205 East 42nd Street, New York 17, New York, Volume 50, No. 13. Subscription rates: United Strates, U.S. possessions and Canada: \$4.00 per year; single copies 75 cents; elsewhere, \$20.00 per year; single copies, \$1.00. Second-class postage paid at Orange, Conn. and at additional mailing offices.



How Koroseal handles some pretty tough customers

The tough customers in this case are those pistons—millions of them; oily, sharp-edged—which travel the production line on conveyor belts. Keeping the pistons moving was so tough that it ruined belts in only 4 months. Their sharp edges cut grooves in the belts, ripped them. Oil soaked into the belt covers, softened them, formed a dirty scum on the surface. Belts had to be cleaned and repaired constantly.

When a B.F.Goodrich distributor heard of the problem, he recommended a BFG conveyor belt made of Koroseal rinyl. Koroseal resists scuffing, tear-

ing, cutting; it stands oil, grease, most acids and just about everything else that ruins other materials. It can be vulcanized into a continuous belt, eliminating troublesome fasteners. And since oil can't soak into its smooth, polished surface, a Koroseal belt wipes clean easily, quickly.

A B.F.Goodrich Koroseal belt was installed. After a year's service, it was still going strong—had lasted three times longer than the belt it replaced—carried over 2 million pistons.

Your B.F.Goodrich distributor has the exact specifications for the Koroseal belt described here. And, as a factory-trained specialist in rubber products, he can answer your questions about the many products B.F.Goodrich makes for industry. B.F.Goodrich Industrial Products Co., Dept. M-134. Akron 18, Ohio.

Koroseni - T. M. Reg. U. S. Pat. Off



Pulse of Business

Industrial Recovery Gaining Momentum

Industrial recovery is gaining speed and there is talk of a new boom.

Optimism is based mainly on the increase in defense spending, a moderate rise in retail volume, and the anticipated full recovery in capital goods outlays before the end of the year. Some economists are even willing to go out on a limb with the prediction that gross national product will be running at an annual rate of \$530 to \$540 billion by the fourth quarter—a figure substantially higher than the projection made by Chairman Walter Heller of the President's Council of Economic Advisors.

Some Industries Have A Long Way to Go

To many producers boom talk is premature, mainly because their volume has a long way to go before it reaches anything resembling the previous cyclical peaks. Assuming that they will achieve a full recovery, these producers cannot see such a point reached until the middle of 1962 at the earliest.

In the rubber industry, for example, there is little hope that either production or dollar volume this year will be as good as 1960, much less 1959. With tire and tube output hinged to the automobile industry, the rubber producers have been hard hit in the first half of the year. Some recovery is forecast for the second half, but it will not be hardy enough to overcome the deficit in the first six months.

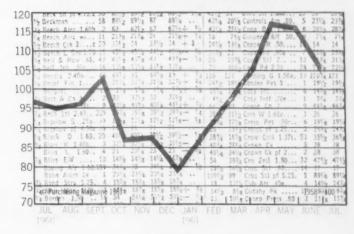
Rubber producers did a volume of \$500 million or more a month in ten of the twelve months of 1959 and in eight months in 1960. The peak month in the last two years was February 1960 when the industry chalked up sales of \$570 million.

Since last November, however, rubber sales have slipped below the \$500 million monthly figure. So far this year, they are well below that mark.

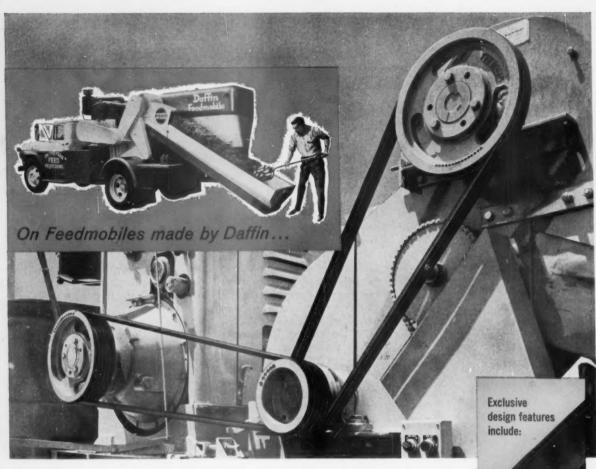
Tire and tube production, at a peak of 127% of the 1957 average in February 1960, fluctuated downward to 96% in March of this

Business Confidence Index

How P.A.'s feel about the short-term economic outlook



Purchasing Magazine's Business Confidence Index dropped 11 points in June to 105 (1958=100). This may indicate that P.A.'s think business recovery will be somewhat slower than previously predicted.



Gates Super HC Drives permit power increase of 20hp in less drive space

The Daffin Feedmobile is a well-designed, efficient feed mill on wheels made by Daffin Manufacturing Co. of Lancaster, Pennsylvania. Originally, all the power for grinding, mixing and blending was transmitted by conventional V-belt drives.

Early in 1960, the machine was redesigned to obtain the competitive advantages that 'result through use of Gates Super HC High Capacity V-Belt Drives.

An official of the company, John Skinner, Jr., says: "The Gates Super HC Drives let us increase the output of the diesel power plant from about 100 HP to 120 HP without reducing the original safety factor. Sheaves are narrower and are about 80 pounds lighter, reducing the overhang load on bearings, increasing bearing life. Guards are 4 inches narrower, require less metal and are nearly 33% lighter weight. Drive cost for each machine has been cut 7 or 8%."

He says further: "The Gates High Capacity Drives have greatly strengthened one of our most important selling points-the fact that 'there is far less down-time with a Daffin.'"

Manufacturers everywhere have standardized upon the Gates Super HC V-Belt Drive -the first and most advanced high capacity drive. It is your best assurance that your power transmission unit will not soon become obsolete.

Your nearby Gates Field Engineer is an experienced, fully-qualified drive design expert. To contact him for help in designing a new drive, or for quick delivery of replacement V-belts, call your nearby Gates Distributor.

The Gates Rubber Company, Denver, Colorado

Gates Super HC V-Belt Drives

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precisely engineered

cave sidewalls, Flex-

Weave cover, super

arched top, con-

on 50 years of progress.

Pulse of Business

PRODUCTION

year. While output is expected to show some improvement, it will be many months in the future before production hits the previously recorded peak.

Tire producers can be expected to sell a total of about 116 million units this year—of which so million will be original equipment and the balance for replacement. This compares with 116 million in 1960, when 40 million were for new cars and trucks and 78 million were replacements.

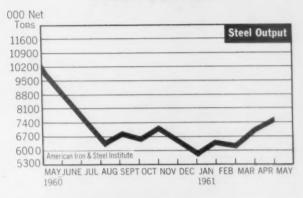
The decline from 1960 of just under 2% will be felt more keenly in dollar volume, however, because growing sales of compact cars tend to reduce the unit price of each tire sold. Even if tire producers and distributors could bring their 1961 production to the level of last year's, they cannot hope to equal 1960 dollar volume.

In addition, sales of rubber products other than tires will be affected by the expected 15% decline in automobile production this year. Foam rubber and polyurethane output is also expected to drop this year, while industrial rubber products will be off by at least 3%.

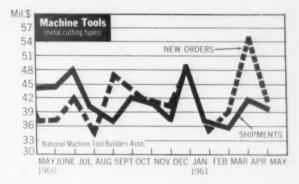
One hope for the industry is in the military field. In the event of a build-up of mobile units and a resurgence in the use of manned-aircraft, rubber sales can be given a tremendous boost.

Another industry, machine tools, was jolted out of its complacency last month. April orders slumped badly and were 31.5% under the March level. Machine tool makers are worried about their foreign orders which had accounted for a large portion of their previous gains. Foreign sales in April were down.

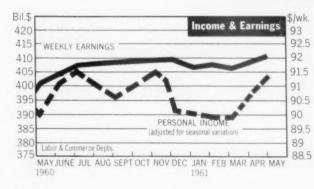
Foreign tool makers are catching up on techniques and research. But more important, per-

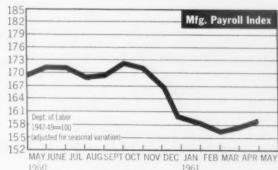






LABOR







"The Gravity Kid" shows how

CONTOUR-WELDED STAINLESS TUBING DEFIES CORROSIVE ATTACKS

It's smoother inside than any other tubing—welded or seamless—because the patented* Contour-welding process virtually eliminates the weld bead. And this smoother surface ensures greater resistance to corrosion—simply because there are fewer focal

points for corrosive attack.
You see, in conventionally welded tubing, gravity pulls the molten metal down into the tubing. This forms a bead that is difficult to remove by cold working. And cold working can lead to

undercuts that become focal areas for corrosive attack.

Contour-welded tubing, however, is welded at the bot*U.S. Patent 2,716,692

tom. Gravity still pulls the molten metal down. But now the weld area corresponds to the contour of the tube. There's virtually no weld bulge on the inside surface. And even on the O.D., the weld seam closely conforms to the tubing contour.

Contour-welded tubing is smoother, too, than seamless. That's because it's formed from uniformly rolled strip steel, whereas seamless is extruded or pierced.

But get full details on this corrosion-resistant tubing. Send for our free 48-page manual on Contour-welded tubing in sizes from 1/8" to 40" O.D.—in stainless and high alloy steels, titanium, zirconium, zircalloy and Hastelloy.*

*Trademark Haynes Stellite Co.

TRENTWELD Stainless and High Alloy Tubing

Trent Tube Company, a Subsidiary of Crucible Steel Company of America. General Offices and Mills: East Troy, Wisc.; Fullerton, Calif.

Pulse of Business

Business

haps, is the fact that replacement of war-torn industries is complete and the machinery producers abroad can now concentrate on export sales to a greater extent than ever before.

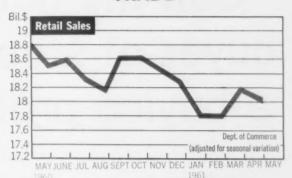
Another factor in the machine tool picture is the lag in plant and equipment spending. While it is expected that total gross private domestic investment, a component in G.N.P., will advance substantially as the year progresses, plant and equipment expansion is not expected to keep pace.

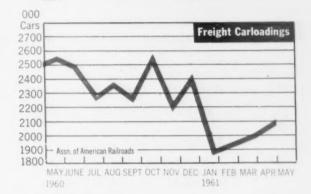
Expenditures for plant and equipment have not exceeded \$36 billion since 1957. Industrial capacity has been more than adequate to meet demand, particularly in manufacturing, and there has been little incentive to increase outlays beyond what most corporations consider to be normal growth.

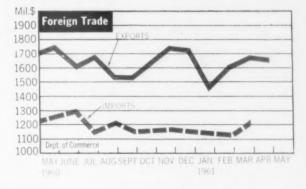
The Department of Commerce—Securities Exchange Commission survey indicated a slight reduction from the first to second quarter in capital outlays. It also predicts a decline of 3% for the year compared to 1960. On the basis of the Commerce-S.E.C. estimate, the fourth quarter annual rate on plant and equipment spending should come back to the \$36 billion mark.

Other economists, however, are willing to predict a higher rate of recovery—on the theory that the speed of an upturn in the first year following a recession is generally underrated. The changes in the tax laws recently are another factor that could quicken the pace of plant investment.

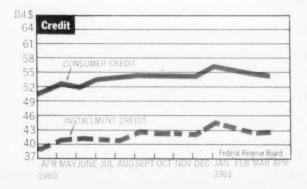
The outlook, of course, varies for different types of industry. The steel industry, for instance, will spend less in 1961 than it did last year, but will raise its outlays in 1962.

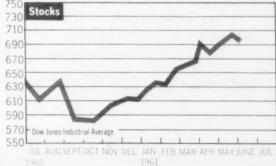






FINANCE





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If you think of Ryerson as a *supplier* of tubing you're only partly right. Because Ryerson is also a *buyer* of tubing—the nation's largest buyer—and this fact holds important advantages for you.

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If you are generally a direct mill buyer here's how you gain:

- 1. At no extra cost you can place mill orders through Ryerson.
- 2. You deal conveniently with local Ryerson men who take full responsibility for meeting your requirements.
- **3.** As the largest buyer we have a knowledge of sources and position with them that few other buyers can command. You eliminate source searching, paper work, expediting, etc., when you concentrate purchases on one order to Ryerson.

So whatever the size of your requirement, whatever the specification, you can count on Ryerson for fast, dependable delivery. And tight Ryerson controls assure consistent high quality of all shipments. When you need tubing call our nearest plant.





STEEL · ALUMINUM · PLASTICS · METALWORKING MACHINERY

Straws in the Trade Wind

- ► RUBBER CONSUMPTION DOWN—Use of new rubber in the United States dropped 5256 tons in April to 115,660 tons. Both synthetic and natural rubber consumption were off. Production of synthetic also fell 4160 tons to 108,-420 tons during the month.
- ▶ BETTER VENDOR INTERVIEWS A series of tips that help make better supplier interviews has been offered by Prof. George S. Odiorne of the University of Michigan. Among his suggestions: dont keep salesmen waiting, compile a record of your interviews, see salesmen in private, make notes or you may forget a crucial point.
- ► CONSUMER PRICES REMAIN HIGH—The government's Consumer Price Index for April stayed at the record level of 127.5 (1947-49=100) notched in the previous month. Significant increases occurred in used cars, movie admissions, and medical care. Important price reductions were noted in gasoline, women's apparel, and new cars.
- New orders for industrial supplies and machinery rose 3.3% in April over the previous month. The seasonally-adjusted new business index of the American Supply & Machinery Manufacturers' Association advanced six points

For the P.A.'s Hot File . . .

Military buying practices have again come under attack in Washington. The use of sole source procurement through negotiation, instead of competitive bidding, was called unsatisfactory and wasteful in many instances by Comptroller General Joseph Campbell. The GAO head says that the military must "reverse the current trend of routinely using negotiated noncompetitive contracting."

to 188 (July 1948=100). The index reflects new orders placed by industrial distributors with their manufacturing sources.

- ➤ STEEL WEATHERS RECESSION The steel industry has come through the recent recession "stronger than ever before," says Benjamin F. Fairless, president of the American Iron and Steel Institute. In the last year, he says, more than 70 new products were placed on the market and over 30 new surface treatments have been developed. Other advances include better production techniques and higher operating efficiency.
- ▶ NEW BUSINESS STARTS OFF—The number of new business incorporations in April dipped about 3% from the previous month to 14,214. This marks the lowest April total since 1958, says Dun & Bradstreet. During the first four months of the year, new business charters totaled 61,131—a drop of 7% from the similar period last year.
- Two big advantages to steel producers of the oxygen converter method of making steel are greater productivity and lower costs. Production rate of oxygen steelmaking vessels is 115 tons an hour, while that in the open hearth plants ranges from 20 to 50 tons an hour. Both the investment cost and operating cost are also substantially cheaper with oxygen steelmaking.
- ▶ VANISHING INCENTIVES—Incentives to industry—upon which employment and economic growth in the United States depend—are "vanishing", says U.S. Steel Corp. executive Robert C. Tyson. Tyson states that recent proposals to increase taxes on profits and dividends penalize "those who have risked their savings to provide the tools of production."
- ► ALUMINUM FOR BUILDINGS Largest percentage of aluminum semi-fabricated products goes for building products, according to the latest figures released by the Aluminum Association. Over 20% is for buildings, followed by 17.5% to distributors and jobbers, 16.4% to transportation, and 12% to containers and packaging.

Your warehouse on wheels!



Interstate System's comprehensive service can help you minimize inventories - safely!



Grand Rapids, Michigan

Consider this. In America's industrial To you, this means effective inventory heartland, where more than 80% of the nation's productive capacity is concentrated, Interstate System moves more freight than any other motor carrier in the business. Service is swift, safe and dependable - direct, singleline, with one-carrier responsibility.

control. Inventories can be minimized safely; your investment in unproductive, costly storage space and stock reduced correspondingly; and your purchasing power will be freed-up for more effective, advantageous use. Savings can be significant. We're in the Yellow Pages.

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Pulse of Business

Sales, Inventories, Orders

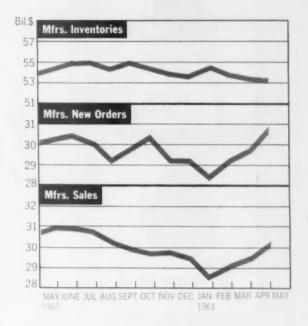
Manufacturers' Sales, Stocks, Orders Up in April

Manufacturers' sales, inventories, and new orders rose, on a seasonally-adjusted basis, in April.

Sales advanced 2% to \$30.2 billion. The gain was largely due to heavier shipments of motor vehicles, steel, petroleum, paper, and chemicals.

Inventories advanced \$60 million to \$53.4 billion, marking the first increase in factory stocks since August. The gain was due solely to a rise in stocks of nondurable goods producers. In contrast, producers of durable goods trimmed another \$100 million from their stocks.

New orders increased a whopping \$800 million to \$30.7 billion—a 16-month high. Biggest gains were made by the steel, transportation equipment, and electrical machinery industries.



Manufacturers' Sales	19	260	1	19	951	
Seasonally Adjusted (Millions of Dollars)	Apr.	L Dec.	Jan.	Feb.	Mar. (r)	Apr. (p)
All Manufacturing Industries	31,029	29,140	28,670	29,030	29,550	30,190
Durable-goods industries	15,005	13,620	13,170	13,320	13,690	14,150
Primary metal	2,306	1,750	1,760	1,810	1,790	1,950
Fabricated metal	1,692	1,580	1,550	1,560	1,600	1,600
Machinery	4,832	4,580	4,650	4,650	4,710	4,850
Transportation equipment	3,361	3,150	2,770	2,830	3,020	3,150
Lumber and furniture	929	800	740	730	770	810
Stone, clay, and glass	748	700	690	700	730	680
Non-durable goods industries	16,024	15,510	15,500	15,710	15,860	16,040
Food and beverages	4,721	4,740	4,730	4,870	4,800	4,810
Tobacco	388	390	410	410	420	410
Textile	1,259	1,140	1,080	1,110	1,160	1,180
Paper	1,030	1,060	1,060	1,080	1,110	1,150
Chemical	2,383	2,260	2,260	2,300	2,380	2,420
Petroleum and coat	3.264	3,220	3,230	3,180	3,240	3,220
Rubber	533	470	450	460	490	490
Manufacturers' Inventories						
Seasonally Adjusted (Millions of Dollars)						
All manufacturing industries	54,657	53,640	53,670	53,600	53,310	53,370
Durable-goods industries	31,925	30,790	30,760	30,650	30,300	30,160
Primgry metal	4,628	4,500	4,490	4,510	4,470	4,520
Fabricated metal	3,316	3,090	3,020	3,020	2,950	2,920
Machinery	10,528	10,350	10,320	10,280	10,250	10,220
Transportation equipment	7,583	6,840	6,920	6,860	6,690	6,660
Lumber and furniture	1,848	1,850	1,850	1,850	1,840	1,830
Stone, clay, and glass	1,421	1,440	1,440	1,430	1,410	1430
Non-durable goods industries	22,732	22,850	22,910	22,950	23,010	23,220
Food and beverage	4,854	4,970	5,000	5,010	5,060	5,120
Tobacco	1,952	2,010	2,010	1,980	1,980	1,980
Textile	2,719	2,670	2,700	2,730	2,760	2,780
Paper	1,551	1,630	1,620	1,630	1,520	1,630
Chemical	4,075	4,160	4,170	4,190	4,190	4,260
Petroleum and coal	3.351	3,280	3,290	3,320	3,370	3,370
Rubber	1,191	1,120	1,130	1,130	1,120	1,120
Manufacturers' New Orders						
Seasonally Adjusted (Millions of Dollars)			Carao			
All manufacturing industries	30,353	28,700	28,500	29,110	29,850	30,720
Durable-goods industries	14,469	13,220	12,880	13,360	13,820	14,580
Non-durable goods industries	15,884	15.480	15,620	15.760	16,030	16,140
	(r) Revised.		(p) f	reliminary.		









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More than one million Capitol forged steel unions are now in service... and not a single failure! Capitol has 4-way built-in insurance to give trouble-free service. Each one of the million has this exclusive combination of 4 engineering features:

(1) Leak-proof connections assured because Capitol unions have more threads, accurately cut and double-checked according to Army-Navy gauging practice. Both hand-tight and pressure-tight threads are checked, two operations instead of the one required for American Standard gauging. The extra threads mean on-the-job assurance of tight installations. (2) Positive seating because each union is individually pressure-tested. (3) Clean/over-all protection, each male and female part completely phosphate coated; each nut electro-zinc plated. (4) Easy wrenching/faster make-up because all three parts have a definite octagon shape.

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Pulse of Business

The Trend of Prices

Nonferrous Buying Remains At Generally Steady Pace

Copper and Tin Prices Continue to Be Strong

As INDUSTRIAL production picks up, the tempo of nonferrous metal buying has been rising with it. This is the present picture in some of the major nonferrous metals purchased by P.A.'s:

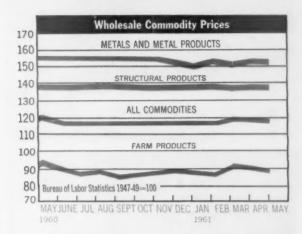
Copper: Copper suppliers are hoping for still further price increases. For example, Chairman Clyde E. Weed of Anaconda Co. says that 33 cents-a-pound would be "a fair and reasonable price" for copper.

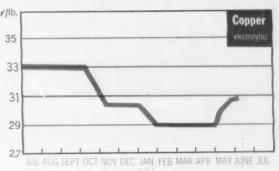
Supporting the feeling that a price hike may be in the offing is the fact that May shipments were up over the previous month. Demand continues to be steady from a wide crosssection of industry,

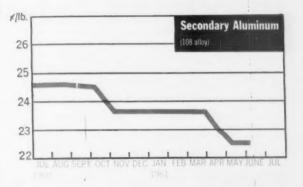
Most of the copper now being sold by custom smelters is on the basis of the average price during the month of shipment. With foreign buyers of scrap copper willing to pay higher prices, U. S. custom smelters are finding that they, too, are having to pay more for scrap.

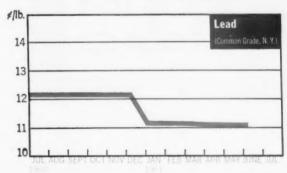
Tin: Tin prices continue to show strength in the New York market. However, the market might ease slightly when final arrangements are made for the release of the 4000 tons of tin the federal government has been holding since it sold its Texas City smelter.

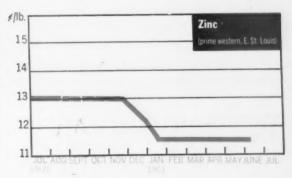
The next meeting of the International Tin Council is scheduled for June 27th. At the close of its last meeting in May, a statement was released noting only that "The Council surveyed the statistical position of tin for 1961



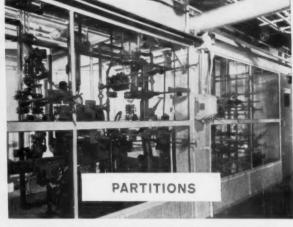




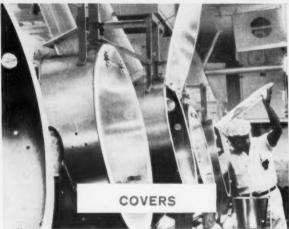












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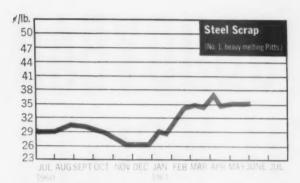
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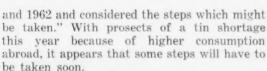
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Pulse of Business

More on Price Trends





Bolivian tin operations have been interrupted by strikes recently. Continued unsettled conditions in the Congo and Indonesia have also affected tin output there.

Lead: Demand for lead has been holding up pretty well. Many orders for carload quantities have been noted.

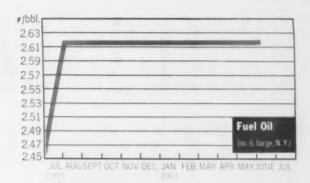
Sales for July shipment have been on both the flat and the average pricing basis. Total sales of refined lead last month were the highest since January 1960—when 74,000 tons were sold.

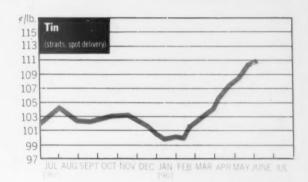
Zinc: Purchases by buyers from the steel industry for prime Western grades of zinc are still strong. But demand for special high grade—used by the automotive industry—remains at a generally low level.

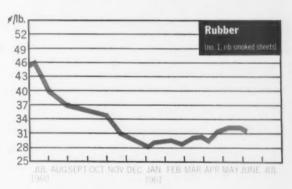
Despite the fact that the recent price cut for special high grade was designed to eliminate discounts, discounts of a half cent-a-pound or more are continuing. With big stocks in the hands of the producers, sales aren't moving fast enough to prevent price shaving.

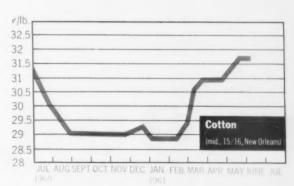
Aluminum: It looks like second quarter sales of aluminum ingots will top the first three months' figure of 433,600 tons by more than 10%. Increased domestic demand has been noted in a variety of industries.

Wire, cable, and electrical conductors are expected to show the greatest gains for the quarter. The increase in this category in the April-June period could be as much as 20% over the first quarter.











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Dimensional stability throughout the life of the belts via highly shrink- and stretch-resistant 3-T Process Cord or airplane-type steel cable.

Protection against dampness through special mildew-inhibited rubber compounds.

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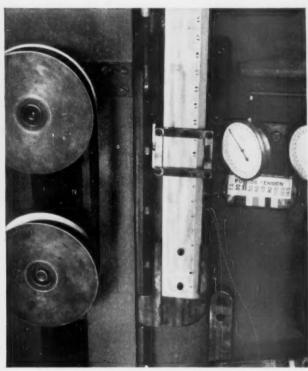
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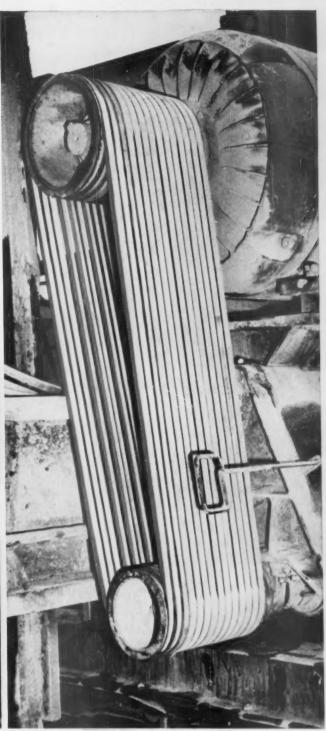
GOOD DYEAR

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CODES TO 1/32"...

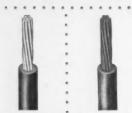


Length-coding GREEN SEAL V-Belts to 1/32" not just 1/10" like most belts—takes this ultraprecision machine. Only Goodyear has this type of equipment, which is set by means of finetolerance steel templates to insure accuracy.



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Kennedy Plans No New Pump Priming

No NEW pump priming is planned by the Kennedy Administration. Steps already taken have lifted the economy to a new take-off point and by the end of this year gross national product will reach a record high rate.

While further measures to stimulate the economy are not planned, there is no disposition to curb the economy as a means of warding off inflation. The Administration has taken the position that the problems of unemployment must be treated separately and apart from the central issue of regulating business activity.

Swings in the economy have taken place over a short period. For example, the last recession — the shortest in history — lasted about ten months. The current problem of high levels of unemployment will continue through the rest of this year and likely through the whole of 1962.

The Kennedy Administration is seeking to tackle unemployment through a program of retraining several hundred thousand workers in new and more useful skills over the next several years. At the same time, the aid to depressed areas program is expected to bring new industry to areas with large scale "structural" unemployment.

A significant change is that the original Kennedy premise was that the health of the economy depended on the restoration of "full" employment — which means an unemployment rate of 4% of the labor force. Now it is generally agreed that

business growth can continue at record levels, even though the rate of unemployment is distressingly high.

Anti-recession measures which were taken by the Administration have, in the main, accelerated recovery. The Administration gives full credit to "the natural forces in the private sector" as the primary spur to recovery.

Govt. Spending to Rise

Direct action taken by the government was to step up its rate of purchase by a more rapid placement of contracts, cutting interest rates, and loosening up credit. It also extended the period over which unemployment compensation is paid.

These measures bolstered

confidence, but the swing from recession to recovery which became apparent in April coincided with a shift from inventory liquidation toward accumulation.

With recovery underway, the Administration does not plan to cut off the stimuli already applied. Government spending will continue at an increased level—with a record peacetime federal budget for fiscal '62 of \$85 billion.

The deficit forecast for fiscal '62 is in the neighborhood of \$3.5 billion, based on the most recent recommendations of the President to increase the space, military, and foreign aid programs.

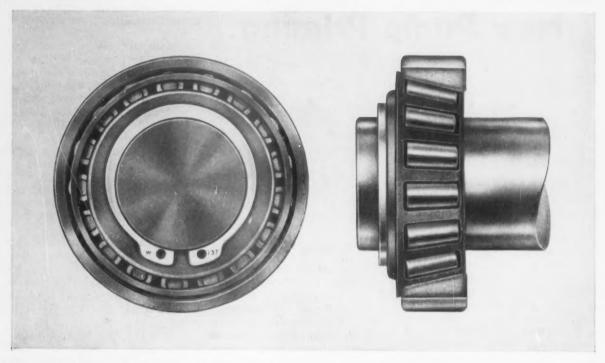
The Administration will also continue its low interest, easy money policy—as indicated by the recent action cutting maximum interest rates on FHA insured mortgages from $5\frac{1}{2}\%$ to $5\frac{1}{4}\%$.

It is the Administration's position that Government spending and lower interest rates will not bring inflation. President



President Kennedy and Treasury Secretary Dillon are pushing a program for a \$1.7 billion tax credit as an incentive to capital spending. However a number of business groups are opposed to the program and ask for a basic tax reform.

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Now you can enjoy the benefits of a truly heavy-duty fastener — with all of the advantages and production economies retaining rings provide. The new Truarc Series 5160 is a unique external ring designed to secure components on shafts, axles and similar structural members. It has high thrust load and impact resistance and forms a shoulder sufficiently high to retain parts having large corner radii or chamfers. The Series 5160 is ideal for retaining bearings. You can use it without spacer washers to secure ball bearings, tapered roller bearings (shown above) and cylindrical roller bearings — all having large corner breakouts. The ring eliminates the need for machined shoulders, costly heavy-duty nuts

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Kennedy says that "these expansionary measures at a time of unemployment, unused capacity, and stable price levels are not inflationary.

In fact, one of the major considerations is not to choke off recovery. The Kennedy policy will be to give the recovery its head. The problem of runaway prices and inflation, however. may bring pressures to clamp down on credit and to reverse deficit spending by the government

'Hard Sell' Doesn't Work

Government officials been using the "hard sell" to work up some support in the business community for President Kennedy's tax credit proposal to stimulate increased investment in plant and equipment.

The President and Secretary of the Treasury C. Douglas Dillon recommended a \$1.7 billion tax credit as an incentive to capital investment. They also want an equal sum recaptured in taxes through a tightening up in a wide range of other business taxes-such as deductible expense account spending, business gift-giving, tax treatment of foreign income, etc.

Spokesmen for the business community, in testifying before the House Ways and Means Committee, have been against the President's proposal. They claim that it is a "gimmick" and feel that a basic reform of the tax structure is needed. The consensus of business testimony favors accelerated depreciation, rather than a tax credit.

Government spokesmen have attempted to make the President's proposal more palatable. They note that the tax credit would be applied this year. Without regard to whether Congress enacts such a credit, broad tax reform legislation will be considered next year.

The concept that the Administration is trying to project is that the tax credit has been devised to stimulate plant and equipment buying. The equity and justification for accelerated depreciation will definitely be a part of the tax reform package that is likely to be acted on next

Industry representatives show a degree of skepticism toward these explanations. They point out that Kennedy spokesmen say that an accelerated depreciation schedule would cost the government roughly five times the amount of taxes that are involved in the tax credit proposal. Thus whatever concession is made now in the form of tax credits would undoubtedly be deducted from adjustments that may be forthcoming in depreciation allowances either next year or at some future date.

All or Nothing Proposal

Treasury Department officials maintain that several alternative approaches toward adjusting depreciation practices are being considered for next year. The present proposal for a tax credit is the only measure being shaped up for enactment this year. This suggests that the Administration favors tax credit enactment for this year-or nothing.

Congressional reaction to the tax credit recommendation is still in a formative process. The Kennedy proposal was presented as a package, with the President recommending the \$1.7 billion credit provided the sum was recaptured through a number of highly controversial tax devices.

The House Ways and Means Committee will be considering the tax credit in executive session during the remainder of this month and the measure will come before the House in July. Final outcome is highly speculative, as it is uncertain how much stress the Administration will put on its enactment and how much opposition the business community may exert against it .- A. N. Wecksler



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Special Commodity Report

Lead and Zinc: It's a Buyers' Market



T'S A buyers' market for lead and zinc! Throughout the rest of 1961, you can expect:

(1) More than adequate supply.

(2) Fast delivery.

(3) Modestly rising sales.

(4) Fair price stability, with some chance for minor advances later in the year. For the present P.A.'s can look for a continuance of discounting in the zinc premiums and diecasting alloys. In addition, there may be some unofficial maneuvering from time to time in lead.

That's the outlook barring any political flareup that might close down a substantial chunk of production or a large-scale U.S. government sponsored program to put a prop under prices. Neither development appears likely.

Try as it might, the U.S. lead and zinc industry can't seem to find prosperity. There's just too much capacity and production in the Free World for

the amount of available business—particularly when the industry has been slapped around by two recessions inside of four years. And the new markets that the two metals have found barely compensate for losses elsewhere.

Last year was disappointing for both metals. Like their counterparts in many other industries, lead-zinc spokesmen started off the year with high hopes and optimistic forecasts. Then came the letdown as sales dropped off sharply after the first quarter.

Demand Drops in '60

Domestic slab zinc shipments fell 15% to 743,018 tons, the lowest mark in 14 years. Total slab zinc shipments (which include exports) went down 62,000 tons to 831,238 tons, marking the second poorest year since 1949. Consumption wasn't off this much, however, since many users ate heavily into inventory for part of their re-

quirements.

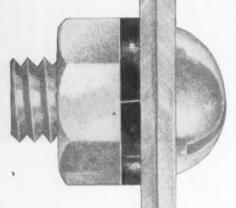
Lead consumption dropped to 1,026,300 tons after having hit 1,091,149 tons in 1959.

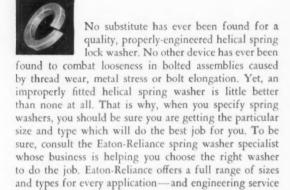
If demand was off, availability wasn't. U.S. zinc smelter production climbed to a four year high of 867,629 tons, despite the fact that two major producers went through lengthy strikes which sharply curtailed their output. Domestic mine production of lead was the smallest of this century—but with imports and secondary recovery, refiners still turned out enough metal to exceed demand.

Producers' stocks have continued rising this year. At the end of April, U.S. stocks of refined lead stood at a hefty 238,063 tons. Producers' slab zinc stocks at the end of May were 213,054 tons.

Unlike the U.S., where consumption today is lower than it was a decade ago, European demand has been steadily rising. The increase has been enough so that Free World consumption







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of both metals hit new highs last year.

In zinc, Free World production and consumption each have risen by over 100,000 tons a year since 1958. Consumption of lead in the Free World since 1958 has been increasing at the rate of about 65,000 tons a year, but production has fluctuated.

The bulk of the Free World stocks reside in the U.S. For example, the combined total of lead stocks held by producers outside this country is only around 180,000 tons—some 58,000 tons less than inventories in this country.

How to solve this overabundance of metal in the U.S. has been a thorny political-economic problem for some time. Under a free market, the world's excess production tends to flow into this country, driving down prices and building up huge surpluses. Probably no other situation in the metals field has produced so much interest in Washington.

Asking for Subsidies

The government's answer to date has been a system of quotas, instituted in 1959, that limits imports of the two metals. No one is particularly pleased with quotas. Some say they still allow too much foreign metal to enter while others decry an "artificial" curtailment of the free market. But they have given domestic producers some relief.

A number of bills are now in Congress that would grant outright subsidies or raise import duties. Only one—a bill that would aid small mines—appears to have a fighting chance of passage any time soon.

Things may be beginning to look a little brighter, however.

Many U.S. producers have cut back output. So have some of their counterparts in other nations under voluntary controls worked through the United Nations. And recently the U.S. reinstituted its barter program for lead, where surplus agricultural products are swapped for foreign lead which goes into the U.S. stockpile.

Prices to Be Stable

All these factors lead some observers to believe that Free World consumption this year will outpace production. If forecasts hold up, 1961 will set another record for Free World consumption and stocks of both metals should each come down over 50,000 tons.

Depending on the speed with which the economy recovers from the recession, U.S. lead and zinc men are predicting a 3%-5% sales upswing this year. This would mean zinc shipments of from 856,000 to 873,000 tons and lead consumption of from 1,057,000 to 1,077,000 tons.

There's little chance that you'll have to pay more for either metal any time soon. Neither is there much chance that official quotations will fall.

The price activity that exists is under the counter. Recently, widespread discounting in the zinc premium grades led to an official reduction in the quoted price for special high grade, high grade, brass special, and the discasting alloy ingots. There could be more of these reductions but discounting probably won't stop until demand takes a healthy jump upwards.

These discounts are a reflection of the supply-demand imbalance. Demand has been particularly disappointing for special high grade zinc this year, mainly because of slackened orders from automobile manufacturers. Not only have a lot less cars been built in 1961, but the increasing popularity of the compact has also cut into zinc usage because these models take

substantially less of the metal per car. The long range trend, however, is for steadily growing zinc diecasting usage in autos.

If the diecasting market has been disappointing, the same can't be said for galvanizing. Sales of prime Western zinc to galvanizers have been running at a strong clip. Forecasts indicate that 1961 shipments of galvanized steel sheets should hit a new high of around 3,200,000 tons, bettering the previous record of slightly over 3,000,000 tons set last year.

The fastest growing market for galvanized sheet is in auto chassis where usage hit a record 218,900 tons last year. Automobile spokesmen predict the trend will continue upwards.

Developing New Markets

For its long term growth, the industry is depending on an expanded research program supported by producers throughout the Free World. In zinc, they're working on such projects as improved finishes and better alloys for diecastings, new galproducts, vanized improved products. Lead rewrought search is covering the metal as a coating, high speed plating, uses in ceramics, employment in sound and vibration control, and better wrought products.

The lead industry is also hopeful for stepped up shipments to its largest customer—the storage battery industry. While today's batteries use less lead and have a longer service life, types of uses are growing. The electric golf cart is one example. Another is the recently introduced battery - powered lawn mower. Industry people say interest is growing in the electric multi - stop delivery truck.

Lead is finding a market in the still small, but growing, field of thermoelectric and piezoelectric devices. A growing market seems assured in shielding devices for atomic reactors,



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That different "something" is IOA—INDIVID-UAL ORDER ATTENTION—a subject that is close to the heart of all Wolverine personnel.

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Purchasing Follow-up

N.A.P.A. Steel Group Sees Signs of Tight Supply Soon

There's a good chance of a tight steel supply in the last three months of this year, according to the latest market report issued by the N.A.P.A. Steel Committee.

The report signed by A. G. Ruediger of Carrier Air Conditioning Company—who recently resigned as chairman of the steel committee—notes that "Now is the time to 'mend your fences,' if you have not already

done so, because there are indications of a tightening steel supply by the fourth quarter. You should have a general understanding with your steel supplier regarding a continuing supply, by steel product line, of the tonnage you need."

Thirty percent of the P.A.'s on the committee predict higher prices early in the fourth quarter, while 70% anticipate no change. Half of the group reports no change in current inventories, with the remainder split about evenly on larger or

smaller stocks in their plants.

Among the items which have the longest lead times are cold finished bars, cold rolled sheets, and zinc-coated sheets. The report says, "Some buyers have been caught short by lengthening lead times and are buying warehouse steel for the first time in many months."

By the end of this month, says Ruediger, "look for the lead time for structurals, hot rolled, cold rolled, and zinc-coated sheets to lengthen considerably ... Mills report strong booking on all these items."

When Labor Contracts Expire

July

INDUSTRY	COMPANY	UNION
Chemicals	Monsanto Chemical Co.	ICW
Machinery	Babcock & Wilcox Co.	BBF
99	Minneapolis-Moline Co.	UAW
Manufacturing	Armstrong Cork Co.	URW
Metals	Florence Pipe Foundry	USA
	& Machine Co.	
11	U.S. Metals Refining	MMSW
	& Mining Co.	
Transportation	N.Y. Cartage Co.	Teamsters

	August	
INDUSTRY	COMPANY	UNION
Air Transportation	American Airlines	ACEA
Automobile	Chrysler Corp.	UAW
11	Ford Motor Co.	UAW
11	General Motors Corp.	UAW
Electrical Machinery	Raytheon Mfg. Co.	IBEW
n	Fairbanks, Morse & Co.	USA
Food	Armour & Co.	Packinghouse
11	Cudahy Packing Co.	Packinghouse
11	Swift & Co.	Packinghouse
**	Wilson & Co.	Packinghouse
Metal Fabricating	Scoville Manufacturing Co.	UAW
11	Trane Co.	IAM
27	Yale & Towne Mfg. Co.	IAM
Metals	Baldwin-Lima-Hamilton Corp.	USA
11	Ohio Steel Foundry Co.	UAW
Transportation Equipment	Borg-Warner Corp.	AIW

Small Business Contracts Increase 40% in April

Prime contracts awarded to small firms—under the joint set-aside program of the Small Business Administration and government purchasing agents—rose 39.5% in April over the year-ago figure. Under the joint set-aside program, the SBA cooperatively earmarks proposed government purchases for exclusive competitive award to small business.

Civilian Contracts Double

Small businesses received 2700 contracts valued at \$107,-224,249 during the month, says SBA Administrator John E. Horne. In April 1960, these firms received 2167 contracts for \$76,852,311.

Contracts awarded by civilian agencies nearly doubled in April 1961. Some 623 prime contracts valued at \$13,264,458 went to small companies — compared with 393 contracts valued at \$7,109,688 a year ago.

Military prime contracts awarded under the set-aside program increased to 2077 valued at \$93,959,791 in April 1961. This compares with 1774 prime military contracts valued at \$69,742,623 awarded small businesses in the month of April 1960.

"Only one outfit can handle this...
Phillie Gear!"

IF YOUR POWER TRANSMISSION REQUIREMENTS ARE SPECIAL...



This multi shaft reducer is a typical example of the special problems we can solve. Specifically, it was designed to drive film tensioning and take-up rolls. A single input shaft operates all the output shafts.



Radar drives are another example. In this case the gears were hardened and precision ground to provide the high degree of accuracy needed for precise positioning of the radar antennae. The primary requirement was minimum backlash and uniform backlash, combined with maximum rigidity.

To solve your special drive problem and to give your product a years-ahead competitive edge, let us know your requirements. Our engineering staff will be glad to work with you.

philadelphia

King of Prussia, Pennsylvania (Suburban Philadelphia)

For More Facts Write No. 170 on Information Card-Last Page

Look to

FAFRIR

for leadership in ball bearings





...Space-saving ball bearings for compact power tools

Power tool makers pack king-size muscle into hand-size heavy-duty drills! Fafnir Extra-Small Ball Bearings help turn the trick. Developed by Fafnir, these bearings are engineered with deeper, smoother honed races and larger balls — to package more brawn in smaller space. Look to Fafnir for leadership in ball bearings. The Fafnir Bearing Company, New Britain, Connecticut.

50 YEARS OF EXPERIENCE IN THE MANUFACTURE OF BALL BEARINGS FAFINGS BALL BEARINGS



From **FAFNIR**... dirt-proof ball bearings that keep harvesting costs down

This giant combine takes a big cut! It's built to cut maintenance, too. Fafnir R-Seal Ball Bearings keep dirt out, grease in, and servicing at a minimum. Developed by Fafnir, the R-Seal is the most effective seal of its kind. Look to Fafnir for leadership in ball bearings. The Fafnir Bearing Company, New Britain, Connecticut.

FAFINGS BALL BEARINGS

For More Information Write No. 87 on Place Mark Card



.. we'll put them together for you

When you are choosing materials for new designs, or when conducting value analysis on existing products, don't compromise on the qualities the parts must have. If you are now using single metals or alloys, chances are you're compromising.

For example, if you need thermal and electrical conductivity, and springiness, no one metal can give you the optimum in all three requirements.

That's where MULtiLAYER clad metals fit into the picture. We will give you a spring steel base material with a layer of copper clad to it and will weld and coin a gold

contact ball onto the blade for electrical conductivity. Besides giving you more beneficial engineering properties, MULtiLAYER will probably save you money because you will need less precious metal.

MULtiLAYER, with its hundreds of possible combinations, gives you another modern material. Take advantage of it. WRITE for our general catalog, GP-1B, which describes this material in more detail and illustrates many thought-provoking applications.

METALS & CONTROLS INC. CORPORATE DIVISION OF

IEXAS .















GAYLORD helps you find hidden packaging costs

The packaging costs you don't see do hurt your profit picture. Eliminate them.

Call in your nearby Gaylord Man. His sharp eye can detect unnecessary packaging expenses. His up-to-date container knowledge can help you make hay—and keep it.

And you don't have to needle him. A phone call is all it takes. Make it today.



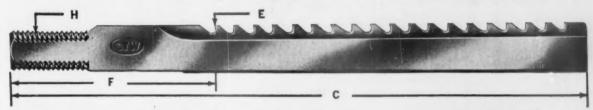




IN CANADA - CROWN ZELLERBACH CANADA, LTD. VANCOUVER B.C.

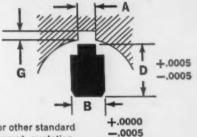
HEADQUARTERS ST LOUIS

CTW Keyway Broaches in Stock NOW for Immediate Delivery!



Continental now stocks a popular range of standard keyway broaches to help you meet production schedules faster than ever, and to let you cut your tool inventory.

Just call your CTW Representative, or order by catalog number direct from Continental. The broaches you need are in stock now—ready for immediate delivery to your plant!



Sizes listed below are available for immediate delivery. See the CTW Catalog for other standard broaches. Special sizes quickly made to order. Send your print for a prompt quotation.

Catalog	1	A (eyway Widtl	h	Min.	Min.†	Max.	Width	Total Broach	Height at Last	Height at First	Length	Keyway Depth	No.	Thread
lumber	Nom. Dim.	Decimal Dim.	Toler- ance	Hole Size	Length Cut	Length Cut	Body B	Length C	Tooth D	Tooth E	Shank F	in Part G	of Cuts	Н
502	3/32	.0948	±.0002	7/16	1/2	11/2	.1865	24	.367	.309	81/4	.058	1	5/16-18
504	1/8	.126	≠.0002	1/2	1/2	11/2	.249	30	.438	.364	9	.074	1	3/8-16
505	1/8	.126	±.0002	11/16	5/8	21/2	.3115	36	.594	.520	10	.074	1	1/2-1
508	3/16	.1885	≠.0002	11/16	5/8	21/2	.374	36	.581	.476	10	.105	1	1/2-1
512	1/4	.251	≠.0002	11/16	5/6	21/2	.374	36	.612	.476	10	.136	1	1/2-1
513	3/4	.251	≠.0002	1	11/16	4	.499	45	.877	.741	1113/16	.136	1	%-1
514	1/4	.251	⇒.0002	17/16	3/8	6	.624	51	1.250	1.114	131/2	.136	1	3/4-1
517	8/16	.314	≠.0002	1	11/16	4	.499	45	.908	.741	1113/16	.167	1	%-1
519	3/8	.3765	≠.0002	11/16	11/16	4	.499	45	.938	.739	1113/16	.199	1	5/6-1
520	3/8	.3765	±.0002	15/16	3/8	6	.499	54	1.189	.990	131/2	.199	1	56-1
523	1/2	.5015	≠.0002	11/2	11/16	4	.624	48	1.312	1.051	12	.261	1	3/4-1
524	1/2	.5015	≠.0002	11/2	1	8	.624	48	1.377	1.246	161/2	.261	2	3/4-1
ORIGIN	AL CTW	SERIES												
CTW 7	3/16	.1885	±.0002	11/16	1/2	21/2	.375	36	.581	.480	9	.101	1	1/2-1
CTW 10	3/4	.251	≠.0002	11/16	5/8	21/2	.375	38	.612	.480	9	.132	1	1/2-1
CTW 11	3/4	.251	≠.0002	1	11/16	31/2	.500	44	.877	.740	10	.137	1	5/8-
CTW 14	8/16	.3135	±.0002	1	11/16	4	.500	46	.908	.740	101/2	.168	1	3/4-1
CTW 17	3/8	.376	±.0002	11/16	11/16	4	.500	46	.938	.740	101/2	.198	1	5/8-1
CTW 23	3/2	.501	⇒.0002	11/2	11/16	31/2	.625	46	1.422	1.160	10	.262	1	3/4-1
ORIGIN	AL XLO	SERIES												
XLO 3	3/16	.1885	±.0002	19/32	15/32	13/4	.250	28	.541	.438	81/4	.103	1	3/6-
XLO 5	3/16	.1885	±.0002	5/8	5/8	2	.375	28	.541	.438	81/2	.103	1	1/2.

L'ontinenta

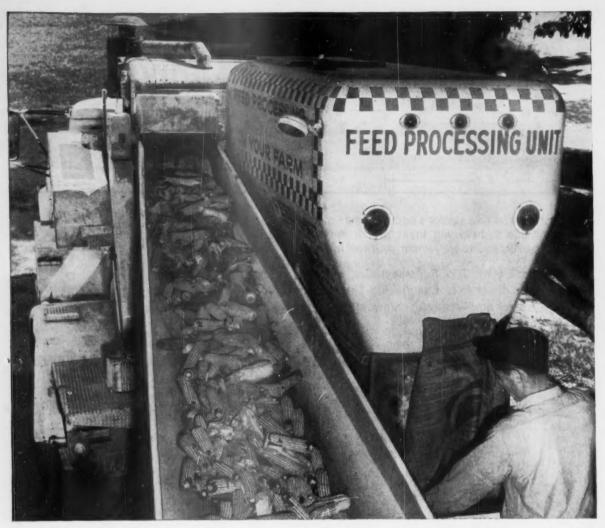


OL WORK

DIVISION O

EX-CELL-O

61-33C



Made by Daffin Míg. Co., Lancaster, Pa., feedmobiles save many hours of valuable farm labor in processing 6,500,000 tons of feed annually, and sheet steel provides the strength and dependability that are so necessary in agricultural equipment.

Only sheets of <u>steel</u> could stand this tough grind



Today the crossroads feed mill is a traveling salesman. The Daffin Feedmobile moves right onto the farm, grinds the farmer's own grains and roughages, blends in the minerals and concentrates he needs, and even loads the finished feed just where he wants it—in bins, self-feeders, bags.

Traveling up to 15,000 miles per year, a busy Daffin Feedmobile averages about 15 batches of 3,000 lb each, every working day. That's a tough grind that's made to order for sheet steel. Bethlehem sheets are used in the business end of Daffin's mobile feed mills, providing plenty of strength and rugged dependability.

If you work with steel sheets—hot-rolled, cold-rolled, or galvanized—you can always count on Bethlehem sheets for completely dependable performance. Our engineers will be glad to discuss your sheet-steelworking problems with you.

BETHLEHEM STEEL COMPANY, Bethlehem, Pa. Export Sales: Bethlehem Steel Export Corporation

BETHLEHEM STEEL



EX-CELL-D 1. High-frequency, 25,000 rpm motorized type. 2. Cutter grinder model; 3600 rpm inbuilt motor. 3. Vertical units fit many power requirements. 4. I.D. type adapts to most machines. 5. Form grinder spindle; 25 h.p. capacity. Cross-section drawing (above right) of single-row bearing shows points of ball contact (A, B and C) on tracks in race.

59-27

EXCLUSIVE RADIAL THRUST BEARING DESIGN PUTS PRECISION INTO PRODUCTION GRINDING

What makes Ex-Cell-O Precision Grinding Spindles run true? Engineering experience, skill in precision production and assembly, quality materials—and perhaps most important, the famous Ex-Cell-O Precision Spindle Bearing!

Made by Ex-Cell-O for use only in Ex-Cell-O Spindles, this custom-made bearing is the product of a unique Ex-Cell-O process which develops tracks or pathways in the race. The ball contacts the race only at these narrow, mirror-smooth bands (see detail above).

As a result, the bearing runs cooler at high speeds; wear is reduced, rigidity is improved, and spindle accuracy is measurably increased.

In widespread original equipment use, Ex-Cell-O Spindles are also an economical means of increasing speed and accuracy in older I.D. or O.D. surface and thread grinders, tool and gear grinders and similar equipment.

See your Ex-Cell-O Representative, or write direct for details on the complete line of Ex-Cell-O Precision Grinding and Boring Spindles.

EX-CELL-O FOR PRECISION (XLD)

EX-CELL-O FOR PRECISION (XLD)

Machinery

CORPORATION Division

PRECISION MACHINE TOOLS « GRINDING AND BORING SPINDLES » CUTTING TOOLS RAILROAD PINS AND BUSHINGS » DRILL JIG BUSHINGS » JIG AND FIXTURE COMPONENTS » CORQUE ACTUATORS » CONTOUR PROJECTORS » GAGES AND GAGING EQUIPMENT « GRANITE SURFACE PLATES » COMPUTER PRODUCTS AIRCRAFT AND MISCELLANEOUS PRODUCTION PARTS » ATOMIC ENERGY EQUIPMENT » DAIRT AND OTHER PACKAGING EQUIPMENT

Information For Your Catalog Files

CAPACITORS

Catalog No. 103 describes capacitors for use in power supplies, communication receivers, and energy storage. The four-page bulletin describes ten different ranges from 10 to 60 kv dc. Includes specifications, dimensions, and operating characteristics.

Corson Electric Mtg. Corp.

Write No. 1 on Information Card-Last Page

GRINDER

A two-color bulletin describing 7-inch grinders. The folder includes illustrations, specification data, and catalog listings. Covers the safety shields, removable steel plates, and oval end bell hubs.

Rockwell Manufacturing Company

Write No. 2 on Information Card-Last Page

INDUSTRIAL FELT

A 16-page catalog on properties of industrial felt. Features a ready reference index which lists alphabetically hundreds of applications with the proper type to use. Covers general, physical, mechanical, and chemical properties.

Continental Felt Co.

Write No. 3 on Information Card-Last Page

MACHINERY MOUNTS

Catalog No. 4011 describes a line of machinery mounts, including Wedgmounts, Jacmounts, and Air-Loc mounting pads. Illustrates each type and lists the sizes and capacities available.

Clark-Cutler-McDermott Company

Write No. 4 on Information Card-Last Page

MAGNETIC COMPONENTS

Bulletin 561 illustrates and describes custom miniature RF magnetic components. Details usage, application, and electrical and environmental performance.

Applied Components Incorporated

Write No. 5 on Information Card-Last Page

MATERIAL HANDLING

A 24-page manual on hydraulic and electrically powered lifting equipment. Illustrated with photographs, drawings, and specifications, the booklet features 59 ways to lift, load, position, and machine feed more efficiently. Applications cover 21 industry classifications.

Globe Hoist Company

Write No. 6 on Information Card-Last Page

PRESSURE REGULATORS

Bulletin 116 illustrates and describes direct acting, reverse acting, and control valve pressure regulators. The 12-page catalog includes features, operations, ranges, specifications, and sizes. Has flow coefficients for sizing valves for water and steam.

Manning, Maxwell & Moore, Inc.

Write No. 7 on Information Card-Last Page

PUMPS

Bulletin 117 PKG illustrates and describes closecoupled end-suction centrifugal pumps. The fourpage catalog gives cross-sectional views, construction specifications, performance charts, and dimension data.

New York Air Brake Company

Write No. 8 on Information Card-Last Page

SPROCKETS

Bulletin 6119P covers a line of Rex stock shear pin sprockets. The eight-page catalog presents easy-to-follow selection aids, drawings, and specifications.

Chain Belt Company

Write No. 9 on Information Card-Last Page

STAPLING TOOLS

A 20-page booklet on industrial stapling tools. One section of the catalog is devoted to descriptions and specifications of the 44 staples in the Paslode line. Also includes an application section.

Signode Steel Strapping Company

Write No. 10 on Information Card-Last Page

STRAPPING TOOLS

Booklet AD-300 describes powered steel strapping tools and accessories. The illustrated, two-color, 16-page bulletin has 35 application photos, along with concise product data and specifications. Covers steelstrappers, stretchers, sealers, tool mounts, and strap feed assemblies.

Acme Steel Company

Write No. 11 on Information Card-Last Page

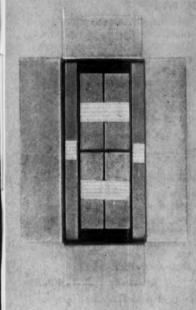
SWITCHES

Catalog 201 gives technical data on industrial limit switches. The bulletin includes descriptions, dimension drawings, and wiring diagrams. Has ordering instructions and a comparative statistics table of major switches.

R. B. Denison Manufacturing Co.

Write No. 12 on Information Card-Last Page

ANOTHER REASON
FOR CHOOSING
OWENS-ILLINOIS
CORRUGATED BOXES







MR. STRONGBOX

LOCALIZED SERVICE FROM:

Atlanta, Ga.
Aurora, Ind.
Bradford, Pa.
Bristol, Pa.
Chicago, Ill.
Dallas, Texas
Detroit, Mich.
Flint, Mich.
Jacksonville, Fla.
Kansas City, Mo.
Salisbury, N. C.

Long Island City, N. Y. Los Angeles, Calif.* Madison, Ill. Memphis, Tenn. Mercedes, Texas Miami, Fla. Milwaukee, Wis. Minneapolis, Minn. Newark, N. J. Oakland, Calif.*

*These plants operated by National Container Corporation of California, subsidiary of Owens-Illinois.

How Owens-Illinois corrugated boxes protect "Project Mercury" voice carrier

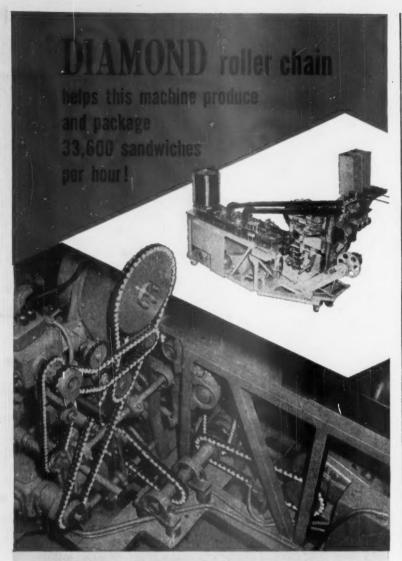
Communication with the first U.S. astronaut in space was made through an electronic voice carrier which also kept track of his pulse and breathing. This device is so *ultra*delicate that the on-the-ground transporting of it posed a problem that was "out of this world."

Owens-Illinois designed the corrugated shipper above for the Project Mercury device and solved the problem. If you're looking for a safer, better way to protect and ship your product, no matter how fragile or delicate, get in touch with Owens-Illinois.

PAPER PRODUCTS DIVISION FORMERLY NATIONAL CONTAINER

OWENS-ILLINOIS
GENERAL OFFICES · TOLED® 1, OHIO

For More Facts Write No. 176 on Information Card-Last Page



560 sandwiches every minute—made, stacked 4 to a package, wrapped and sealed—by The Lynch Corporation / Quality Machine Company combination unit. The secret is perfect synchronization and split-second timing at high operating speed...a typical example of DIAMOND Roller Chain precision performance.

Whatever your application—conveying, timing, synchronization, power transmission—you can rely on dependable, accurate DIAMOND Roller Chain for a long life of low-cost, trouble-free service.

DIAMOND CHAIN COMPANY, INC.

A Subsidiary of American Steel Foundries

Dept. 521 - 402 Kentucky Avenue, Indianapolis 7, Ind.

Offices and Distributors in All Principal Cities



For More Facts Write No. 177 on Information Card-Last Page

Catalog Files

SWITCHGEAR

Bulletin #3200-1A provides comprehensive information on 600-volt switchgear. The 20-page catalog covers circuit breakers and switchboards, ranging in unit ratings from 225 to 4000 amperes. Includes application tables, selection data, and a typical layout drawing.

I-T-E Circuit Breaker Company

Write No. 13 on Information Card-Last Page

TOOL BITS

Bulletin OR-61 describes and illustrates a series of tool bits. The six-page catalog covers design features, materials of composition, functions, and advantages. Contains application diagrams, composition, charts, and a list of typical material applications.

Van Norman Industries, Inc.

Write No. 14 on Information Card-Last Page

TOOLS

Catalog No. 700 illustrates and describes 330 new items in a line of tools. The 132-page book gives information on all categories including tool holders, wrenches, and machine shop specialties.

Armstrong Bros. Tool Co.

Write No. 15 on Information Card-Last Page

TRANSDUCERS

A set of six technical bulletins on digital transducers and sub-miniature pressure instruments. Includes features, characteristics, and outline drawings.

DeJur-Amsco Corporation

Write No. 16 on Information Card-Last Page

VALVES

A 16-page pocket-size reference booklet on valves. Publication No. 1496-V offers condensed listings of standard and low pressure gate globe angle, and check valves. Includes a figure number comparison chart, application tips; and other pertinent information.

Ohio Brass Company

Write No. 17 on Information Card-Last Page

The Payoff is <u>Performance</u>



G-E Man-Made diamond bats 1.000 against high costs







Do you want to do something about high costs . . . boost your grinding efficiency . . . step up output per wheel?

Grinding wheels with G-E Man-Made diamond are making important contributions to the metalworking industry. An on-the-job test would show you that the crystal characteristics of controlled shape and friability that are built into G-E Man-Made diamond result in consistently superior grinding performance—bat 1.000 every time!

Do this. Call your grinding wheel supplier and order a wheel containing G-E Man-Made diamond. Test it in actual production in your own shop. You'll see what we mean.



A carbide cutting tool manufacturer — grinding single-point carbide tools — compared 6" x 3/" x 11/" plain cup wheels, vitrified bond, 120 grit, 100 concentration — dry grinding. In this actual case history the natural diamond wheel removed 37.1 cubic inches of carbide, whereas the wheel containing G-E Man-Made diamond removed 53.4 cubic inches. Superiority of G-E Man-Made over natural? 44 per cent!

METALLURGICAL PRODUCTS DEPARTMENT

GENERAL (ELECTRIC

11143 E. 8 MILE AVE., DETROIT 32, MICHIGAN

CARBOLOY® CEMENTED CARBIDES . MAN-MADE DIAMOND . MAGNETIC MATERIALS . THERMISTORS . THYRITE® . VACUUM-MELTED ALLOYS

For More Facts Write No. 178 on Information Card-Last Page

These "extras" make BJ Pumps cost <u>less</u> in the long run!

INVENTORIES for fast, out-of-stock delivery of standard model pumps or replacement parts... inventories of materials and manpower to design and build custom-engineered pumps for any purpose... and an inventory of experience since 1872, are all "extras" offered when you buy BJ!

Byron Jackson's nation-wide structure of thirty-eight sales engineering and service offices, plus BJ dealers and representatives in many areas, blanket the Country with on-the-spot assistance, just as BJ's overseas offices and licensees are available internationally.

BJ quality at competitive prices - plus extra servicescost less in the long run!



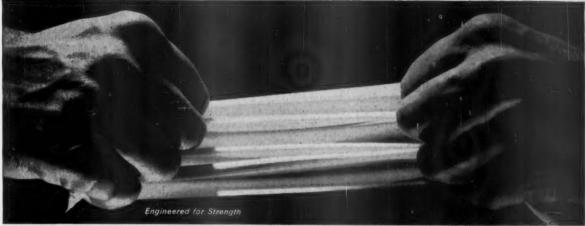
BJ Sales engineering and service offices are conveniently located wherever, whatever your needs!

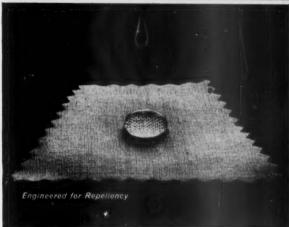
BYRON JACKSON PUMPS, INC.

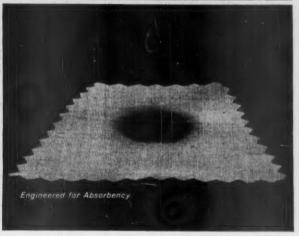
SUBSIDIARY OF BORG-WARNER CORPORATION P.O. Box 2017 Terminal Annex, Los Angeles 54, California



An example of Avisco Rayons in Industry







There's an application for Avisco[®] rayon in your business

The big news in industry today is the increasing use of Avisco rayon fibers. Versatility is the reason. Avisco rayon can be custom engineered to meet your end-use requirements.

Need strength? Avisco rayon fibers add backbone, tensile and flex life to beltings, burst strength to hoses, tensile and tear strength to coated fabrics and laminated paper, film and foil.

Need absorbency (or repellency)? Avisco rayon fibers are used extensively in medical and hygienic products.

Need superior filtration? Avisco rayon fibers are produced in a wide range of precise micron diameters to control porosity and improve efficiency.

Whatever you make, there's a way you can save time and money with Avisco rayon fibers engineered to your specific requirements. Find out now.

QUICK	REPLY	COU	PON	6-9
Industrial Merchand American Viscose Co 350 Fifth Avenue, N	orporation			
Please contact me a following application				
Name				
Company				
Address				
City		one	State_	

AVISCO



RAYON

AMERICAN VISCOSE CORPORATION, 360 Fifth Avenue, New York 1, N. Y.

For More Facts Write No. 180 on Information Card-Last Page



AIR CARGO EQUIPMENT CO. at Glendale, Calif.

Our use of Lubriplate Lubricants exclusively, followed the "torture testing" of our Bulldog Cargo Winch at an Air Force test center. The 196 pound winch, lubricated with Lubriplate, was operated under a six ton load in environments of extreme heat, cold, salt, humidity, dust, altitude, explosive vapor and pressure. Now, our unconditional guarantee is valid only if the Lubriplate Lubricants, factory sealed in our winches, are not replaced by other lubricants.

John J. Terlep, Sales Manager

TYPE OF YOUR MACHINERY, LUBRIPLATE GREASE AND FLUID TYPE LUBRICANTS WILL IMPROVE ITS OPERATION AND REDUCE MAINTENANCE COSTS.

LUBRIPLATE is available in grease and fluid densities for every purpose . . LUBRIPLATE H. D. S. MOTOR OIL meets today's exacting requirements for gasoline and diesel engines.



For nearest Lubriplate distributor see Classified Telephone Directory. Send for free "Lubriplate Data Book" . . . a valuable treatise on lubrication. Write LUBRIPLATE DIVISION, Fiske Brothers Refining Co., Newark 5, N. J. or Toledo 5, Ohio.



For More Facts Write No. 181 on Information Card—Last Page

Letters To The Editor

OVERS AND UNDERS

Dear Sir:

We are interested in obtaining information pertaining to industrial standards on the acceptance of over and under shipments. We are particularly interested in standards for items such as electronic components, fasteners, metal fabricated parts, plastic molded parts, and screw machine parts.

Specially, we would like to know what allowances in plus and minus percentages are granted to suppliers on these or similar items. We realize, of course, that many variables are involved. However, we believe that standards used by the television industry and others in the electronic entertainment field would be applicable to our situation.

Jack Paul The Wurlitzer Company Corinth, Mississippi

• Tearsheets of articles dealing with overs and unders have been forwarded to Mr. Paul. Readers with suggestions on standards for specific items mentioned by Mr. Paul are invited to submit them.

REJECTION RATE OF PURCHASED PARTS

Dear Sir:

In the past few months we have tried to maintain a quality rating for all semi-finished, purchased parts, including sheet metal, machined castings, turnings, and stampings.

The report does not include hardware, electronic items, or shelf items. The rejection rate is arrived at by dividing the total number of items received, into the total quantity of rejected items. Our results for the last four two-week periods are: 14.0%, 3.7%, 10.7%, and 12.9%. The cumulative rate is 12.8%.

Many of the items that we purchase are to tolerance of plus or minus .001" or .0005". Our percentage of material actually returned to vendors, because it was not functional, during the period

covered was 7%. If all items were reported, the quality rating would be well under 1%.

Are these figures good? Are they below the national average for the electro-mechanical industry?

> D. G. Denver Linofilm Corporation Wellsboro, Penna.

• Reprints of articles dealing with over and under shipments have been sent. Other readers are invited to describe their own experiences and policies on overs and unders.

LAUGH, AND THE WORLD . . .

Dear Sir:

We would like to acquire the original drawing of a cartoon [see cut] which appeared in your March 27, 1961 issue.

The drawing will be added to our collection of cartoons which deal with computers. The collection is displayed from time to time



"Nice fourth quarter, X-24 . . ."

and every drawing is identified by name and date of publication and the name of the artist.

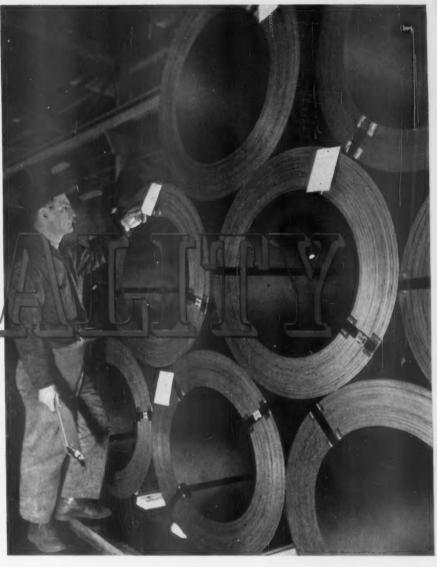
May we also reproduce this original for our internal use? Such reproduction would be in the form of a poster or a slide for projection purposes.

Nancy S. Hoke International Business Machines New York 22, New York

• Permission has been granted to reproduce the drawing.

This man is making sure of...

IN GREAT WESTERN STEEL



On every order for steel, no matter how large or small, the Great Western quality control team is on the job making sure of quality in every possible way.

This exacting quality control begins the minute your order is received and extends through every step of the way . . . order writing . . . specifications . . . processing

... inspection ... packaging ... verification ... and delivery.

Call Great Western for your next steel order. Large stocks of steel, complete processing facilities and skilled personnel make sure you get the quality steel you want . . . where you want it . . . when you want it.

CHICAGO Call HEmlock 4-5800
MILWAUKEE Call HIIItop 4-3092



include
COLD ROLLED,
HOT ROLLED PICKLED,
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LONG TERNE

- . SHEETS
- . COILS
- . STRIPS



General Office and Plant: 2300 W. 58th St., Chicago 36, Illinois Milwaukee Office and Plant: 2475 W. Hampton Ave. REPRESENTATIVES IN PRINCIPAL MIDWESTERN CITIES

For More Facts Write No. 182 on Information Card-Last Page

TO IDENTIFY YOUR PRODUCT



New folder illustrates examples from every industry of profitable, effective product and package identification by Markem machines. Write for your free copy.



... MAKING YOUR OWN LABELS or DIRECT PRODUCTION MARKING

may save you thousands of dollars and delays every year

Using labels, decals, transfers, tickets, tags, nameplates or handstamps to identify or decorate your products and packages may mean spending far more money and time than you need—and getting less than perfect product and package identification. In contrast, consider these natural advantages of making your own labels or direct marking as needed with a flexible, efficient production machine in your own plant:

- ... you automatically identify or decorate as production requires, with complete information in a single low cost label or direct print
- ... you cut your *investment* in label inventory . . . and eliminate waste from obsolescence
- ... you achieve attractive and completely informative product and package identification . . . that helps the buyer, the user, and the person who reorders
- ... you're independent of outside sources and you avoid inconvenience when new identification is needed ... you can change part or all of the imprint in seconds

To get specific cost-saving recommendations and figures, call the Markem Technical Representative near you or write the main office. We will describe the particular combination of Markem machine, type, specialty ink and operating method to give you highest quality product and package identification—at the lowest possible cost.

Markem Machine Co., Keene 34, N. H.

MARKEM

HELPS YOUR PRODUCT SPEAK FOR ITSELF



Now you can meet virtually every plant partitioning need right from Logan's greatly enlarged stock of high quality, low-cost wire panels. And stock size Logan partitions are so easy to plan, obtain, and erect, you'll never again pay for made-to-order wire partitions. Send the coupon today for the complete brochure-catalog presenting Logan's ...

- 1. NEW FULL-MODULAR PANEL SELECTION IN 4 STANDARD HEIGHTS-basic 5-ft.-wide panels, plus all filler panels, doors, and service windows for almost any floor plan, location, and function, with no special fabrication work to buy.
- 2. NOW EXTRA HIGH PARTITIONS AT LOW COST -partitions up to 20 ft. high, ceiling-attached or freestanding, with little or no special fabrication. Choice of four stock panel heights and a major new idea in vertical planning make it simple.
- 3. NEW LOW-COST STOCK SIZE WIRE CEILINGS -the extra security of completely covered wire enclosures now yours at far less than before . . . up to 20-ft.wide runs of any length . . . little or no special fabrication required . . . easy to plan and erect. Add a low-cost ceiling to your present partitions.

4. NEW STOCK SIZE SHEET-METAL BASE "FENDERS" -separate sheet metal panels that apply to base section of complete wire partitions . . . make built-in sheet metal sections old-fashioned because they give greater strength at no greater cost, apply to existing partitions as well as new, and are easily removable. Logan Fenders from

Write for the name of your nearby dealer or send coupon ... catalog gives easy 4-step planning ... Logan ships anywhere.

stock may fit your present partitions-investigate today.

LOGAN CO. BUILDERS IRON DIVISION

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Please send FREE the new Logan Wire Partition Catalog.

Also please give name and address of nearest dealer.

☐ Have dealer call to give free partition planning help.

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POSITION

COMPANY

ADDRESS

ZONE STATE

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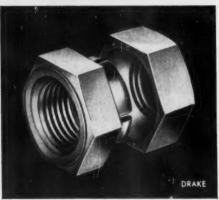
NAT'S quick facts about Fasteners...











Looking for the **right** lock nut? Put these four high on your check list

By taking an early look at these National all-metal lock nuts, you may often be able to make quick work of finding the locking member that best meets the requirement of your particular job.

Once over lightly, here are the advantages they offer you.

MARSDEN—For minimum cost and average conditions. Free-running until seated. One-piece, fully re-usable.

HUGLOCK—For use under adverse conditions. Locks without seating. One-piece design, and fully re-usable.

CONELOK—For applications requiring high-fatigue life, as assured by closed stress paths in Conelok's locking sections. Locks without seating. One-piece design, and fully re-usable.

DRAKE—For use under severe stress, shock or vibration. Free-running until seated, or can be locked at any point by using two wrenches. Two-piece design, and fully re-usable.

Take a good look at all four, and at the advantages they may be able to offer in your product assemblies. You may not be thinking of an application right now, but get the literature* and keep it handy in your files, just in case.

*There's a folder on the Conelok, and a booklet on the others. Write for your copies.





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California Division, The National Screw & Mfg. Company • 3423 South Garfield Avenue, Los Angeles 22, California



Purchasing People In The News

Haylett O'Neill, Jr. has been named purchasing manager of Humble Oil & Refining Company, Houston, Texas. He will be responsible for coordinating material and equipment purchasing activities for the complete Humble organization. Mr. O'Neill was purchasing agent for the company's



Haylett O'Neill

former Humble Division. Last year he was general manager of the purchasing department of Humble's Esso Standard Division, New York City, on a six-month special assignment. Mr. O'Neill is a graduate of Rice Institute. In 1959 and 1960 he served as president of the Houston Purchasing Agents Association.

Three staff promotions in the purchasing and stores department of United Air Lines at the company's Chicago, Ill. executive offices have been announced.

Richard A. Young, superintendent of supply research since 1960, became assistant to the vice president of purchases and stores. H. H. Bentson, administrative assistant business management since 1960, has been made surplus and transportation manager. J. M. Baird was named superintendent of purchase contracts. He had been a project engineer in United's facilities and property department.

After 46 years of service with Cutler-Hammer, Milwaukee, Wisc., B. M. Horter, director of purchases, plans to retire at the end of the year.

Mr. F. A. Wright has been named to the post of purchasing agent, with responsibility for all purchasing functions. He joined Cutler-Hammer in 1927 following his graduation from the University of Michigan with a degree in electrical engineering.

James E. Pratt has been appointed assistant purchasing agent of The American Hardware Corporation, New Britain, Conn. Before joining the company as a buyer in 1959, Mr. Pratt held po-



James E. Pratt

sitions with General Electric Co. and International Silver Co. He took a degree in economics at Wharton College of Finance and attended the graduate school of Trinity College. He also took the purchasing courses sponsored by the Purchasing Agents Association of Connecticut.

Thomas E. Reitz, senior inspector in the procurement department of Koppers Company, Pittsburgh, Pa., has recently been named manager of the inspection Section. He has replaced Paul G. Winters who retired last month. Mr. Reitz joined Koppers as an inspector in the procurement department in 1946 and was appointed senior inspector in 1950.

William F. Veenstra has been appointed an assistant general purchasing agent of American Brake Shoe Company, New York, N. Y. He will be primarily re-



William F. Veenstra

sponsible for the procurement of machinery, equipment, and construction. Mr. Veenstra joined the company in 1957 as a construction buyer. He is a graduate of Rutgers University.

Donald E. Coffmar recently became director, fleet purchasing and maintenance for North American Van Lines, Inc., Fort Wayne, Ind. Mr. Coffman had been purchasing agent for the company. He is executive secretary of the Fort Wayne Purchasing Agents Association.

Arthur H. Swanson has been appointed director of purchasing, Stauffer Chemical Company, New York. Mr. Swanson was formerly director of credit and insurance and prior to that was the company's purchasing agent. He succeeds Mr. Kenneth H. Allen who died recently.

SEE PAGE 180 FOR MORE PURCHASING PEOPLE IN THE NEWS



In a preference survey made by an independent organization back in 1955, key men in companies throughout the country gave Lyon 5 times more first choice votes than any other steel equipment manufacturer.

In a comparable survey made in 1960, Lyon's first choice margin jumped to 7 to 1! And Lyon received more exclusive mentions than the next 22 companies combined!

Your nearest Lyon Dealer offers the world's most diversified and most preferred line of steel equipment—quality protected to give you the most for your investment.

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THIS CATALOG ILLUSTRATES
THE WORLD'S MOST
DIVERSIFIED LINE
OF STEEL EQUIPMENT
IT'S FREE!

METAL PRODUCTS

For More Facts Write No. 187 on Information Card-Last Page

Pioneer Salt Company's unique chemical "department store" serves Delaware Valley



Loading platform at the Philadelphia warehouse accommodates 6 trucks simultaneously.

Industrial chemical purchasers in the Delaware Valley enjoy the advantages and economies of "one-stop shopping" at the Pioneer Salt chemical distribution center. More than 175 chemical products are available for immediate delivery—the largest, most diversified line in the Delaware Valley. Pioneer is the valley's largest salt distributor, with the only bulk facilities.

Customers of Pioneer Salt receive the benefits of the latest materials handling facilities. These include an unusual "hot room" at the Philadelphia warehouse where drums and bags of chemicals with high freezing points are stored at temperatures over sixty degrees. Philadelphia and Maple Shade, N. J. warehouses are fully palletized, with fork trucks for quick loading. Stocks are kept up to the minute by an automatic inventory control. A modern fleet of trucks assures same-day deliveries whenever necessary Hydraulic tail gates expedite loading and unloading.

Pioneer Salt Company matches its modern facilities with a trained and competent staff of representatives, backed by research and production chemists utilizing the latest in modern laboratory equipment. In product availability and customer service, Pioneer Salt Company is typical of the outstanding chemical distributors handling Mathieson chemicals. We will be pleased to tell you about a distributor in your area. Write OLIN MATHIESON, Baltimore 3, Md.

MATHIESON CHEMICALS—Ammonia • Carbon Dioxide • Caustic Soda • Chlorine • Hydrazine and Derivatives • Hypochlorite Products • Methanol • Muriatic Acid • Nitric Acid • Soda Ash • Sodium Bicarbonate • Sodium Chlorate • Sodium Chlorite Products • Sodium Methylate • Sodium Nitrate • Sulfur (Processed) • Sulfuric Acid • Urea 485



Bright, modern offices of the sales department typify Pioneer's progressive marketing attitudes.



Liquid chlorine is bottled at Maple Shade, N.J., daily in 100-lb., 150-lb. and 1 ton containers. Chlorine is pumped directly from tank car on siding to filling machines.





hoover quality BEARINGS AT THEIR BEST

Hoover bearings achieve highest quality standards through the use of exclusive *Micro-Velvet* balls, accurate within millionths of an inch, and Hoover-Honed raceways that are super smooth, superbly

To preserve this superior quality throughout extended life, Hoover bearings can be protected with shields and seals to lock out dirt, grime and other harmful contaminants. As shown above, shields, seals in Teflon and felt, and a combination of shields and seals meet a wide range of requirements. To assure highest quality . . . best protection . . . specify Hoover sealed or shielded ball bearings. Get complete information from your local Hoover bearing distributor listed in the Yellow Page Directory, or write us direct.

Micro-Velvet and Hoover-Honed are Hoover Trademarks. Tefion is a DuPont trademark for its fluorocarbon resins.

AND BEARING COMPANY

5400 South State Read, Ann Arbor, Michigan

8581 South Chicago Ave., Chicago 17, Illinois Offices and 290 Lodi Street, Hackensack, New Jersey
Warehouses 2020 South Figueroa, Los Angeles 7, California

toover Ball and Bearing Company 5400 South State Road, Ann Arbor, Michigan	PM-
Please send me information on Hoover sealed and shielded ball bearings.	
Nome	
Title	
Company	
Address	
CityS	itate

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Couldn't "in-plant metering" HELP YOU CUT COSTS TOO?

Wherever things flow through pipe in your plant—whether as fuel, aids to production, or finished products—chances are that in-plant metering will be an immediately profitable investment. For example: above, you see Rockwell gas meters installed on individual enameling furnaces. The meters were recommended by a Rockwell field engineer as a fast, easy way of spotting furnace inefficiencies and preventing fuel wastage. Also, accurate fuel cost records of each operation were available for the first time—Cost Accounting Department figures were made more revealing.

In a bottling plant, another Rockwell field engineer recommended water meters to prove amounts of water actually bottled with product. The result: a sizable reduction in a sewage tax based on the premise that all water going into the plant would be discharged into the sewage system.

These are just a few examples of the many ways Rockwell field engineers are helping save time, money and material in a wide variety of manufacturing and process plants. These field men represent Rockwell's experience as the world's largest manufacturer of measurement and control products. Why not have a Rockwell field engineer visit your plant to explore new approaches to cost cutting through improved measurement and control? Send the coupon—there is no obligation.

ROCKWELL

The leading single source for Measurement / Control products and ideas



HOW MUCH COULD YOU SAVE?

There is hardly a plant anywhere—including yours—where the right application of the right measurement and control methods and equipment won't produce savings many times the modest cost involved. Certainly it's worth investigating—especially since it will cost you nothing to find out. Simply mail the coupon now.



"IN-PLANT" METERING:

LIQUIDS AND GASES

"IN-PLANT" METERING can mean new cost cutting opportunities. Accurate liquid and gas meters are a positive way of improving cost control, insuring better use of materials, sharpening inventory control, and preventing waste. Whatever the need, Rockwell has the right liquid or gas meter to do the job better and at lower cost.

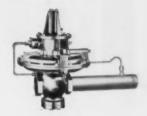




CONTROLLING PIPED MATERIAL:

LIQUIDS AND GASES

CONTROLLING PIPED MATERIAL more efficiently is a positive step towards cost cutting. Better valves can save wasted products and materials and often increase plant safety. Gas pressure regulators can cut costs by assuring safe, economical use of any gas used in the plant. Rockwell has the world's most complete line of flow control devices.





MEASUREMENT & CONTROL DEVICES

another fine product by

ROCKWELL

Rockwell Manufacturing Company, Dept. MC3F, Pittsburgh 8, Pa.
Please send me literature as checked:
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Regulating gas pressures. Bulletins 1044, 1059, 1082, 1086
Measuring liquids. Bulletins P-100, PI-666, OG-400
Condensed catalog of all products. Bulletin C-5000
Please have your Field Engineer call.

Name	Title
Company	
Address	
City	Zono State



That slick paper you peel from pressuresensitive labels, tapes, and other "peel and stick" products is a most unusual paper. Choosing a paper that'll keep the stick sticky and still peel easily requires careful study. Both the adhesive and the paper have technical and chemical variables, and processors using high cost materials can't afford to take chances with unproved release paper.

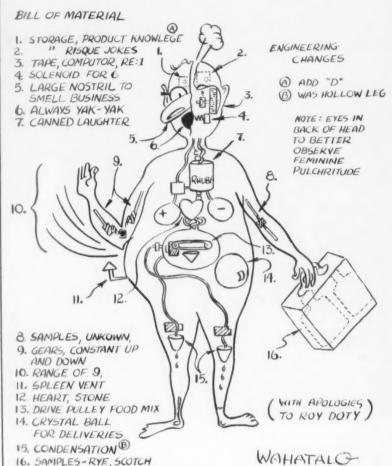
For over 15 years, users of pressure sensitive adhesives have found the best answers at Riegel. We have many releasing papers . . not only for adhesives, but also for casting films and foams, container liners, and various interleaving jobs . . . typical of our 600 papers now serving industry in products, in production, in packaging.

The most universal releasing papers are named "Riegelease." Our technical data folder is your best place to start. Write for it today.

SEND FOR Riegel Paper Corpo	
P.O. Box 250, Nev	
Please send samples : RIEGELEASE to:	and data on
Mr	
Co	
Address	

For More Facts Write No. 191 on Information Card—Last Page

FOB-"filosofy of buying"



THE SALESMAN

S EVERAL ISSUES back (Jan. 30, 1961, p. 42) we printed a wildly exaggerated sketch from The American Salesman showing the salesman's impression of the purchasing agent. We ran it, as we run many observations by salesmen, without endorsing it but with the hope that it might provoke a little good-natured jousting between buyers and sellers. Both groups have written to us that they enjoyed the cartoon.

Recently Ralph Wahatalo, P.A. for Gray Mfg. in Hartford, Conn., submitted his own "artistic" contribution to the dispute, and we present it here in the same spirit of objectivity that characterizes all our dealings with the sales fraternity.

FOR A COMPREHENSIVE treatment of the problem of imports as it relates to steel, write for a copy of Colorado Fuel & Iron's house organ, "Blast", Heat 35, Tap 7. President A. F. Franz documents the whole story, custom district by custom district.

Purchasing agents will be particularly interested in the challenges Mr. Franz lays down to every CF&I employee (and by implication, employees in all American industries), if foreign competition is to be met:

(1) We must maintain quality standards that assure a quality product second to none.

(2) We must provide service which is the best.

(3) We must give the customer

what he wants when he wants it.

(4) We must fight for the order, and work our heads off to keep it.

(5) We must do an honest full day's work for a full day's pay.

(6) We must handle machinery, equipment, and supplies with care and without waste.

(7) We must constantly look for new ways to do a job better and more efficiently.

(8) Each of us must consider that it is a personal obligation and responsibility to reduce costs and increase performance.

(9) There must be complete cooperation between labor and management.

THERE WILL be a lot said during the centennial celebration of the Civil War about the heroism and romance, so maybe it's time somebody said something about purchasing during the great conflict between the states. We'll start it off with a section from the Court of Claims Reports, ii: 98, covering the case of Simon Stevens vs. The United States Government in 1862. The U. S. Assistant Solicitor said to the court:

"The arms were purchased by Arthur M. Eastman, from the United States, at three and one half dollars each, because they had been inspected and pronounced unserviceable by the ordnance officer. They were sold by Eastman to the claimant for twelve and one half dollars each, and the claimant at once sold to General Fremont at twenty-two dollars each. The Government price for new arms of this pattern, of good quality and fit for service, was seventeen and one half dollars."

WE HESITATE to mention anything that would create any further suspicion or distrust in the world, but dedication to the advancement of good management forces us to report the rather ominous heading we caught sight of on a list of candidates for a top purchasing position drawn up by one of the better executive search organizations in New York. It said, starkly: "Suspect List."



New testing sieve standards have been set by ASTM, NBS and ASA...and are in the planning stage for world-wide adoption. All or the specification data in our new bulletin, just off the press, conform to these new standards. This bulletin will be a good one to have in your file anyway, but if you are in the market now for sieves and/or sieve shaker, you can get all the information you need for ordering.

Newark Wire Cloth

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Representatives in all principal industrial areas

For More Facts Write No. 192 on Information Card-Last Page

New Class B Insulation to give you 15% more horsepower on totally-enclosed Life-Line motors





Now Class "B" Insulation replaces Class "A" as standard on totally-enclosed 1-250 hp Life-Line a-c motors giving you these advantages:

Added capacity... Operation at 15% over nameplate rating without reduction in motor life.

Longer life... 80% to 100% longer life at rated loads than motors with Class "A" Insulation.

This newly designed motor is engineered to give top performance in a wide range of applications. On-the-line experience in the steel industry, where maximum reliability is essential, has proved its higher output, longer life and lower maintenance under the toughest conditions.

For the ultimate in protection specify Guardistor* on all Westinghouse motors. This exclusive built-in static motor protection allows the use of maximum horsepower over long periods with no danger of motor burnout.† For additional information ask for booklet B-7876-A.

Your Westinghouse sales engineer can supply you with complete details on these money-saving motors. Call him for full information on how they can fit into your production scheme. Westinghouse Electric Corporation, P.O. Box 868, Pittsburgh 30, Pennsylvania.

You can be sure . . . if it's Westinghouse.

*Trademark

Westinghouse



†Warranty: Westinghouse GUARDISTOR MOTORS on frames 182-445 inclusive are guaranteed for one year against burnouts due to overheating resulting from: overload, locked rotor, blocked ventilation, bearing seizure, single phasing, unusual duty cycle, high ambient, or voltage unbalance, providing the Guardistor elements are connected in a control circuit so that the motor is removed from the power source in the event of over-temperature.

J-22170

If there are yellow pages in any steel in a hurry from

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Newark Service Center BI 2-8000 BA 7-7711

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Memphis Service Center WHitehall 8-6741

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STRUCTURAL Shapes



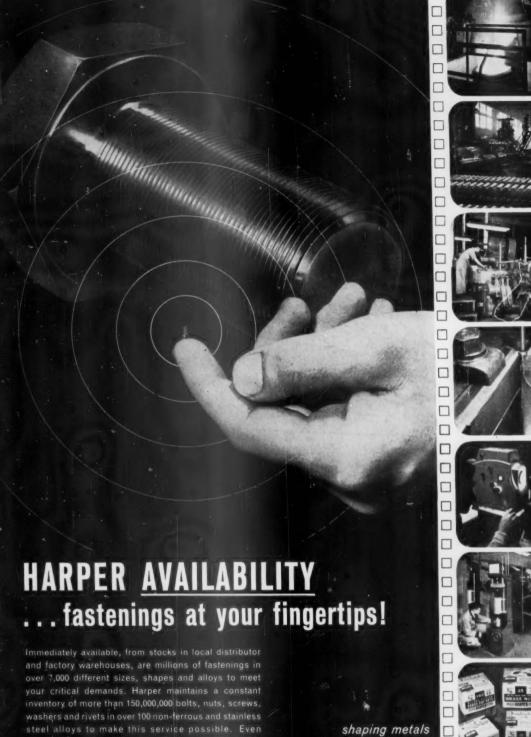
Pittsburgh Service Center FAirfax 2-4200

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"specials" made to your specifications are promptly processed through Harper's completely integrated operation to meet your requirements. Availability of fastenings is a fact with Harper. Call your local Harper Distributor or branch office today for proof!

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Calendar of Coming Events

JUNE				JLY			
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- June 16-19. National Association of Metal Finishers: Annual Convention, Statler Hilton Hotel, Boston, Mass.
- June 18-20. The Material Handling Institute: Late Spring Meeting, Pittsburgh Hilton Hotel, Pittsburgh, Pa.
- June 18-23. American Electroplaters' Society: 48th Annual Convention, Hotel Statler - Hilton, Boston, Mass.
- June 21-24. National Tool, Die and Precision Machining Association: Summer Meeting, Schroeder Hotel, Milwaukee, Wisc.
- June 25-30. American Society for Testing Materials: Annual Meeting. Chalfonte-Haddon Hall, Atlantic City, N.J.
- June 28-30. American Society of Mechanical Engineers: Joint Automatic Control Conference, University of Colorado, Boulder, Colo.
- June 28-30. National Machine Accountants Association: Royal York Hotel, Toronto, Canada.
- July 18-20. Western Plant Maintenance and Engineering Show: Pan Pacific Auditorium, Los Angeles, Calif.
- July 25-Aug. 10. Chicago International Trade Fair, Mc-Cormick Place Exposition Center, Chicago, Ill.

- July 30-Aug. 2. Institute of Surplus Dealers: 16th Trade Show, New York Trade Show Building, New York, N.Y.
- Aug. 16-19. Society of Automotive Engineers: National West Coast Meeting, Sheraton Hotel, Portland, Ore.
- Aug. 28-Sept. 1. American Society of Mechanical Engineers: Second International Heating Conference, University of Colorado, Boulder, Colo.
- Sept. 11-15. Instrument Society of America: 16th Annual Meeting, Fall Conference & Exhibition, Los Angeles, Calif.
- Sept. 14-15. American Society of Mechanical Engineers and American Institute of Electrical Engineers: Engineering Management Conference, Hotel Roosevelt, New York, N.Y.
- Sept. 25-26. Steel Founders' Society of America: Fall Meeting, The Homestead, Hot Springs, Va.
- Sept. 25-28. American Welding Society: Fall Meeting, Adolphus Hotel, Dallas, Texas.
- Sept. 26-28. Institute of Sanitation Management: Sanitation Maintenance Show, Hotel Sheraton, Philadelphia, Pa.

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Value Analysis Fact Sheet

ANACONDA FREE-CUTTING BRASS ROD

Not the plain old work horse many think, it can be produced with a variety of valuable properties—in addition to high machinability—to do many special jobs better, and at lower cost.

For the great majority of high-speed screw machine jobs, free-cutting brass rod is a standard shelf item.

But in an increasing number of jobs, the free-cutting property alone is not enough. Deep drilling to close tolerances, roll-threading, knurling, staking, slotting, etc., call for uniformity in a variety of other property combinations.

Fortunately free-cutting brass is a unique "on the fence" alloy (see Metallurgical Comment at the right) that can be adapted to answer these new demands—help screw machine operators meet increasingly rigid requirements and utilize cost-saving practices.

Specialized applications. Over the past several years, Anaconda American Brass has introduced several refinements into the usual mill practice for free-cutting brass and has developed different rods for specialized applications. In most instances, these rods will still meet ASTM and Government specifications.

Chip breaking. For the user who demands a rod with uniform ability to break up into small chips, an alloy is supplied which regularly contains substantial quantities of beta. This, because it is brittle at room temperature, adds to the chip-breaking ability of the lead already there. This rod is, therefore, particularly good for high-speed forming and drilling applications. On the other hand, it is the least ductile and can therefore be formed and headed to the least extent.

Cold forming. The usual and more numerous special applications require uniform ability to be coldworked—as in roll-threading, knurling, heading, and other deforming.

Properties of these special rods are refined by heat treatment or special drawing operations so that the rod can be consistently cold-worked. Normally, there is little sacrifice in machinability, but there is some loss in the ability of the rod to break into small chips.

Deep drilling. In small rod particularly, there has been an increasing demand for material that can be drilled to close tolerances. Special drawing and heat treating practices were developed to produce a rod which performs uniformly, even in such exacting applications as ball point pen tips.

High Strength. And for those applications calling for uniformly higher strength than the usual material, there is a rod produced by special drawing practices.

Technical assistance. If you have a special problem—whether it involves a variation of free-cutting brass or another free-cutting or engineering copper alloy—call in your Anaconda American Brass representative. He'll make available to you the experience and services of metallurgical and mill specialists. Or write: Anaconda American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.

FOR MORE INFORMATION about Anaconda Rods for Screw Machine Products—including physical properties, mechanical properties, composition and machinability — write for Publication B-14. Address: Anaconda American Brass Company, Waterbury 20. Connecticut.

Metallurgical Comment

Free-Cutting Brass can provide relatively wide variations in temper and ductility within the range of composition defined in ASTM and Government specifications (60 to 63% Cu, 2.5 to 3.7% Pb, remainder 7n).

In the commonly available rod temper, referred to in ASTM specifications as "half hard" and more commonly in the trade as "hard," tensile strength may range from 50,000 to 70,000 psi, depending on the rod size and the manufacturer.* And there can be a comparable variation in cold-working properties.

Here's why. The range of 60 to 63% copper was selected for freecutting brass because it is the lowest which can be used to produce an alloy that can be hot-worked readily and also cold-worked. This means a brass that can be hot-extruded down to small sizes—and that later can be cold-worked to II modest degree.

In more technical terms, free-cutting brass is at the transition point between the alpha phase (the ductile form of the alloy) and the beta phase (the form that's hard and brittle at room temperature but readily worked when hot). Thus, relatively minor changes in composition and fabrication practices can make substantial shifts in the proportion of alpha and beta grainshence in strength and ductility. Various combinations of these properties can be maintained uniformly by careful control of mill practices.

Free-cutting property of the alloy is, of course, provided by lead dispersed through it—and is not materially affected by changes in other properties.

Standard Anaconda Free-Cutting Brass-271 has a composition of 61.50% Cu, 3.25% Pb, 35.25% Zn. This composition and the mill procedures used are designed to provide a rod which will fit the great majority of high-speed screw machine work.

*In special hard temper the tensile strength of small sizes will approach 90,000 psi.

ANACONDA

FREE-CUTTING ROD

Anaconda American Brass Company

DON'T UNDERPRICE YOUR ANALYSTS—If you really have confidence in what value analysis can do for your company, back it up by plugging for a good salary for a good man. One midwestern firm found it got the best people for value analysis by putting the job in the same salary bracket as its top buyers—around \$14,000 a year. That figure may be a little high for your company, but the principle remains the same: you're not getting the best value from value analysis when you try to get it on the cheap.

KEEP AN EYE ON DISCOUNTS—Don't let indifference or inefficiency keep you from making money on discounts. One P.A. suggests setting up a file of discount orders and/or invoices. Check it each day to see the deadline dates. Supplement it with a tickler file to remind receiving to turn in receiving reports promptly so that discounts may be taken.

THERE'S MONEY LYING AROUND THE PLANT—Have you taken a thorough look at scrap and surplus around your plant lately? Here are some items that are often overlooked, although they will bring a good price in the scrap market: spare parts for machines that have already been sold; materials bought for use in discontinued lines; unused and now obsolete items stashed away by "squirrels" in production.

DON'T OVERLOOK THE BACK OF THE ORDER—The reverse side of original orders is commonly devoted to terms and conditions. But don't ignore the other copies of your purchase orders. Using the odd sides may eliminate a separate form. One company has a report form printed on the reverse of the quality control copy of the p.o. Inspection fills this in when it pulls the order to check the material upon receipt. Another manufacturer uses the back of a Navy copy for the required price affidavit. Expediting copies may be ruled to log follow-up information, receiving copies made to serve as receiving reports, etc.

A SOURCE OF SKILLED HELP—Handicapped workers have established excellent records in a number of industrial purchasing departments.
If you need office help, think twice before you rule out people
with physical defects. Mill & Factory, a Conover-Mast publication (205 E. 42nd St., New York 17, N.Y.), has published two
interesting and informative pieces on the subject: "Does
Industry Employ Handicapped Workers," and "Handicapped Employees—Real Worker Assets." Information can also be obtained
from local representatives of The President's Committee on
Employment of the Physically Handicapped.

WHAT'S NEWS IN ENJAY TECHNICAL SERVICE



Enjay helps reduce cost of 90°C vinyl wire insulation...

An important part of Enjay Technical Service is developing useful new products that reduce costs, yet maintain performance. Ditridecyl phthalate for use in plasticizing vinyl wire insulation is a good example of this research activity. By tests, such as the oven aging shown above, Enjay was able to prove that DTDP, made from Enjay tridecyl alcohol, performs as an efficient, non-volatile plasticizer for 90°C wire - yet reduces plasticizer cost. Test results, at right, show that the insulation exceeds the U.L. Specifica-

Enjay research facilities and technical skills are available to customers in the vinyl wire, film and sheeting industries.

If you would like to receive a free copy of our new Technical Bulletin No. 20 on Enjay oxo alcohol for plasticizers, write to 15 West 51st Street, New York 19, N. Y.

TEST RESULTS: 7 DAYS @ 121°C

U. L. Specification Minimum DTDP Plasticizer

65% retention 65% retention 50% retention

100% retention 127% retention

* 1 day and 7 days @ 113°C.

Elongation Tensile Strength

Dielectric Strength

Insulation Resistance

PETROCHEMICALS

EXCITING NEW PRODUCTS THROUGH PETRO-CHEMISTRY

ENJAY CHEMICAL COMPANY

DIVISION OF HUMBLE OIL & REFINING COMPANY

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Cinderella Strikes Back

Purchasing Magazine June 19, 1961 IT WAS almost as much of a shock as seeing Loretta Young dump arsenic in the orphanage soup kettle. But there it was in black and white: an ad in the executive recruiting section of the New York Times seeking a "penny-pinching" director of purchases for a leading industrial company.

Purchasing agents who not many years ago endured such taunts from their colleagues and suppliers could be pardoned a momentary bewilderment. A couple of decades ago they had seen a prominent sales manager describe a purchasing agent as "a man who knows 99 cents is less than a dollar and that's the only damn thing he does know."

And now the penny-pincher is being sought after to fill a high management position. Has the language lost its meaning? Has the fictional doubletalk of George Orwell's "1984" become a reality in the business world? Has vice turned to virtue?

Not in this case. What has happened is that a simple truth has been rediscovered in the frantic search for ways to beat competition: 99 cents is less than a dollar. And it is that one penny, in many cases that 1% saving (which is becoming increasingly difficult to make anywhere but in purchasing) that determines whether a company gets the business or loses out to a lower cost producer, domestic or foreign. As Carl Frische, president of Sperry Gyroscope Co., told a meeting of suppliers: "No longer can anyone win contracts on the old three dimensional basis of creative engineering, quality manufacturing and superior service. Today, the fourth requirement, cost, is of equal and perhaps even greater importance."

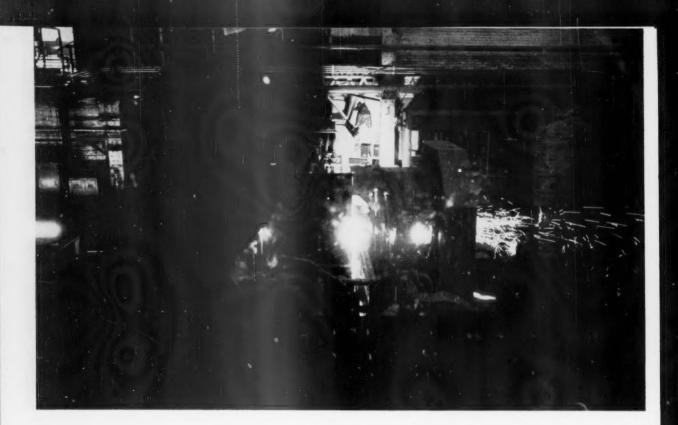
Penny-pinching is respectable again and the purchasing agent who was scorned for it is now being eagerly courted in industry. But in the excitement of coming out of the coal bin and into the limelight, this latter-day Cinderella should remember these things:

—The ability to cut costs is only one of the attributes that management is seeking in a purchasing executive. The ad mentioned above called also for a good education, broad technical knowledge, and an ability to work with others.

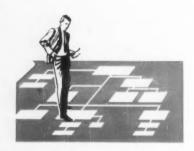
—Penny-pinching must be intelligently selective. The P.A. who puts more time into saving pennies on envelopes than he does on high-volume components, for example, deserves the scorn of the others in the plant. Both types of cost reduction are important, but are not always put in proper perspective by purchasing agents.

—Quality, reliability, and performance are still the foundation stones of a product's success in the market. No cost reduction, however impressive, should even be considered if there is a chance it will impair any of these. Lowest cost is only a part of what is still purchasing's basic goal—better value.

Paul V. Farrell



Who Should Be Materials Manager?



Purchasing agents and production control managers are logical candidates for the top materials job. P.A.'s naturally consider themselves better qualified. Whoever gets the job must be a top-flight man.

By Dean Ammer, Executive Editor

THE MATERIALS management type organization is gaining in industry. But it is far from being welcomed, or even accepted, by many purchasing agents.

Half the P.A.'s replying to a special Purchasing Magazine Opinion Poll think materials management is not a good idea for their companies. And 56% claim materials management is harder to sell to top management than the concept of an independent purchasing department that participates in top-level policy

making

Many of today's purchasing agents won't make the grade as materials managers if their companies switch to that type of organization, according to a number of respondents. They specify these shortcomings as holding many P.A.'s back:

- They just can't see the "big picture" of company operations.
- They're too wrapped up in the details of the buying job.
- They're short on the special training needed to be a materials

manager.

- They don't know enough about production processes.
- They aren't familiar with related activities in materials management, particularly production control and traffic.

The outlook for a meeting of the minds between purchasing and materials management isn't completely out, however. Most purchasing agents have a high opinion of the importance of purchasing and of their own qualifications in respect to materials management. About 60% feel that the purchasing agent is the logical candidate for the materials manager's job; only 31% would pick the production control manager. [Ed. note: What would a survey of production control managers show?] About two-thirds of the respondents thought that most purchasing agents they knew were qualified; only one-third could say the same for most production control managers.

Background Is Important

Although no one would deny that it is not completely fair to ask purchasing agents whether they think purchasing agents are better qualified to be materials managers than production control people, the P.A.'s do have some points in their favor. First, most of today's materials managers are ex-purchasing men. (There are a couple of good examples discussed in other articles in this issue.) Even when management has not selected the P.A. as materials manager, it has not necessarily chosen the production control manager. In many cases, the best man in management's opinion has a background in sales, finance, manufacturing, or engineering. Reciprocity - conscious managements are likely to pick a sales executive as materimanager. Engineering-orriented managements would be most likely to select a man from engineering, and so on.

But there's also II lot to be said in favor of a competent production control man as materials manager. A good production control manager is an expert in inventory management; he knows how to manage a lot of people; and, if he's on the ball, he knows who the suppliers are and how to work with them.

P.A.'s Tend to Speak Up

The main reason production control managers haven't been strong candidates for materials managers' jobs is that production control is too often a submerged function. The production control manager-to a much greater extent than the purchasing manager -is lost in the manufacturing hierarchy and just doesn't get much chance to express himself. This is sometimes true of purchasing-but less frequently. The purchasing manager can make a wonderful case for having a vital role in management. Many purchasing managers wind up as vice presidents-and some even

Purchasing's Opinion on Materials Management

Materials management is currently one of the most controversial subjects in purchasing. P.A.'s who are for it say it will bring new opportunities to purchasing. Those who are against it say that it smothers purchasing under a new and unnecessary organization level; they think purchasing should strive to remain at least equal with the other basic functions of the business—engineering, marketing, manufacturing, and finance.

PURCHASING Magazine surveyed a representative group of purchasing agents throughout the country on this hot topic. Their combined answers follow.

(1) Do you think a materials management type organization (in which purchasing, traffic, production control, and related functions all report to a single manager) could be successfully adopted in your company?

Already have adopted

Could be adopted successfully

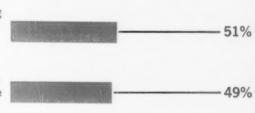
(2) What would widespread adoption of the materials management concept do to purchasing?

Basically bad; purchasing will be pushed down to make room for materials manager

Not a good approach in

my company

Basically good; materials management will improve purchasing's status.



Opinion Poll continued on next page

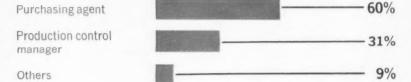
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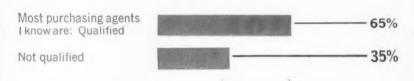
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Purchasing Opinion on Materials Management

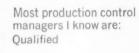
(3) Who would you say is the logical candidate for the materials manager's job in most companies?



(4) What is your frank opinion of the qualifications of P.A.'s and production control managers as candidates for jobs as materials managers?



(5) Do you believe the purchasing agent or materials manager in your industry should be both the actual and nominal equal of the managers of sales, engineering, finance, and manufacturing?

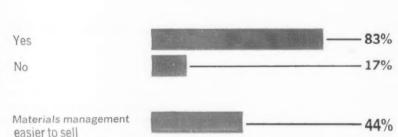


Not qualified



32%

(6) Do you think the concept of materials management is easier to sell to top management than the concept of a strong, independent purchasing department that participates in top level policy making?



Materials management harder to sell



end up on the board of directors—of their companies. But how many vice presidents-production control are there?

2 Departments Want Change

This is probably a good reason why production control managers should be more enthusiastic about materials management than purchasing men. Materials management permits the production control and traffic departments to be brought out from under the complex manufacturing organization and given the attention they deserve. Production control and traffic may be looked on as a subsidiary function by a manufacturing vice president whose

main job is getting out production. But put them under a materials manager and they become two of his three most important activities.

Few production control managers have been unhappy with materials management organizations—even when they end up working for an ex-P.A. who has been appointed materials manager. And, of course, the production control manager is still in the running for the job. Few organizations remain static for even a year. And a 40-year-old production control manager who becomes No. 2 man in a materials department has plenty of time to work his way up to the No. 1

spot

Just because purchasing men have copped most materials managers positions to date doesn't give them any prior claim to future openings. In fact, the trend in technology favors production control, not the P.A., as a contender for the materials manager's job.

How many P.A.'s, for example, are up-to-date on the latest developments in electronic data processing? The production control manager almost always gets intimately involved in such developments. (When he doesn't, management starts looking around for a replacement.) His basic system is affected almost

immediately by data processing and he must keep abreast of developments. What about the P.A.? He could get away with maintaining the status quo almost indefinitely since most of his job is concerned with supplier relations and associated problems. No one has figured out how to automate supplier negotiation—so far at least.

Keeps Up-to-date

Another technological development—automation—also favors the production control manager. He is intimately involved in all changes in manufacturing processes. He has to be if he is to do his job properly. The P.A., on the other hand, can insulate himself from change, if he sets his mind to it. If he simply accepts requisitions and lets his vendors worry about whether or not the plant's needs are being filled, he can go for years without putting one foot inside his company's plant.

Because of automation and data processing, a so-so production control manager will probably make a better materials manager than a so-so. P.A. The production control man has to keep up with what's going on or he will lose his job; the P.A. can drift and get away with it.

Odds Favor P.A.'s

But now let's compare a topflight P.A. with a top-flight production control manager. Here, the odds favor the P.A. Both the P.A. and the production control manager are reasonably familiar with all phases of the materials cycle. Both know how to inspire subordinates. Both are up-to-date on their industry's technology. But the P.A. has two basic advantages. First, the P.A. is more likely to have management's ear when changes are being planned. Second, the P.A. is used to dealing with top officials in supplier plants and is more likely to be expert in handling the materials problems of special interest to top management-design changes, new products and processes, trade relations, etc. So truly competent P.A.'s should not have to worry if their companies switch to a materials management organiza-

Should Purchasing Be Part of Production Control?

While purchasing men often regard materials management as a way to gain recognition and boost company profits, there are others in management with different views. Many executives look at purchasing as a sub-function of manufacturing. Theory is that you buy whatever you're not interested in making. Behind this theory lies the belief that purchasing is not a profit-making activity in itself and is merely a convenience to provide goods and services for the manufacturing manager and other managers of the prime functions of the business. Some even hold that purchasing should be a sub-sub function—subordinate to the production control department.

For example, one management consultant writes that "purchasing is . . . part of the manufacturing operation . . . because that is where the major purchasing effort is directed." Later he points out that "locating sources of supply and obtaining good prices is a full-time job in most industries. However, vendor scheduling and follow-up are more closely linked to production scheduling and material control. For this reason, it has been advocated that purchasing be an integral part of production control."

He adds that "the vendor expediting function itself is often found in the production or material control unit, in which case two groups are in contact with the vendors and considerable confusion may result. Moreover those who advocate moving purchasing under production control point to the fact...that vendors must be looked upon as additional departments to be scheduled and that all scheduling should be centralized.

"These arguments deserve consideration because the other principal contacts of the purchasing department are generally with inspection or quality control personnel. And, under any well-run system of production control, inspection—although otherwise independent—will be scheduled by the production control department."

The management consultant who makes these statements is highly respected. His ideas are damning in purchasing's eyes. But they may well be getting a hearing from top managements. It appears purchasing men still have a long way to go, in some companies at least, before they can establish the case that they're not sub-functions of manufacturing or, worse yet, sub-sub-functions of production control.



What a Manager Does

The man who takes over materials management must have a broad knowledge of all the functions that come under him. But his big responsibility is to motivate others—give them the incentive to do a better job.

WHEN YOU find switching to a materials management type of organization can cut your purchased material inventories by \$300,000, it would seem that you're getting good mileage out of the system. Not so, says Hall Whitworth, materials manager at the Canton, N. C. mill of Champion Paper & Fibre Co. He says this, in spite of the fact that materials management has also made it possible to slash demurrage charges 90%, and to reduce the

materials department staff from 420 to 330.

The reason Whitworth isn't satisfied is because he feels he's only scratched the surface. "The program at our plant has only been operating for two years," says Whitworth. "We hope to accomplish a lot more in the next few years."

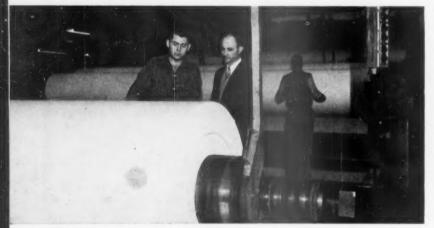
There's no question about Champion Paper's being sold on the materials management system. Witness the fact that it has a Corporate Director of Materials (G. A. Jackson) at its head-quarters in Hamilton, Ohio; and has adopted this type of organization for its Hamilton and Pasadena (Tex.) plants.

Attends All Meetings

Whitworth reports directly to the division manager of the Canton mill and functionally to Corporate Director of Materials Jackson. He has full responsibility for materials at the Canton plant (although he relies on his section supervisors for advice on all matters affecting them). He serves on almost all the plant's key management committees, including the policy, capital review, job progression, discipline, and management section committees. In addition, his administrative assistant, Ed Duckworth, sits in on production meetings to make certain the materials department is up-to-date on schedule changes and other manufacturing prob-

Has Wide Responsibilities

Whitworth is responsible for all of the Canton mill's materials activities including purchasing, traffic, inventory control, finished goods and non-productive materials stores, materials handling,



Champion's Materials Manager Hall Whitworth (right) discusses materials handling problems with Bob Denard, assistant manager of the paper manufacturing department.

shipping, receiving, scrap and waste disposal, and salvage. Before he became materials manager, Whitworth was a supervising seven buyers and several clerks.

P.A.'s Can Learn

How does a man who has spent practically all his working career in purchasing learn enough about other materials activities to be ready when the opportunity comes? The answer, according to Whitworth, is to broaden yourself as much as possible while you're holding down a purchasing job. He points out that there's no better place to learn than in purchasing where you have to work with almost every other department in the company. This doesn't mean that Whitworth regards himself as an expert on every job in the materials department. He has no illusions on that score. "My job is to motivate other people; to stimulate them to do a better job," he explains.

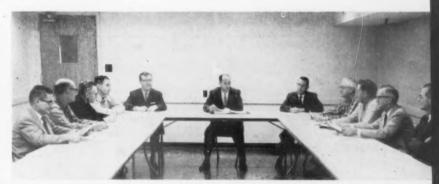
Whitworth believes that increased motivation is one of the main reasons the materials management concept is so successful. "In the conventional organization," he points out, "departments like receiving, shipping, and stores almost get lost in the shuffle. They're minor parts of much larger departments. In the materials department, however, they are major activities and get the attention they deserve. Inevitably, this gives them the incentive to do a better job."

At Champion, for example, the shipping department was formerly under production's jurisdiction. Naturally, the production manager did his best to give each of his supervisors as much help and recognition as possible. But there's no denying that the production men gets paid mainly for one job: getting out production. He is primarily concerned with making paper, not shipping, storing, or handling it. On the other hand, when shipping was brought into the materials department, its new boss was solely interested in materials activities.

When shipping was part of manufacturing, its main job was to move whatever the mill pro-



Whitworth goes over a new procedure with his supervisors of materials handling, transportation and sanitation, receiving and storage. Morale has improved markedly since these supervisors and their men were brought into the materials department.



Whitworth meets periodically with the supervisors who help him manage his 330-man department. They are, from left to right: Edward Duckworth, administrative assistant; Howard Setzer, materials handling; Tom Reeves, traffic; Harry Holland, transportation and sanitation; Dan Reno, purchasing; Whitworth; Carter Rhinehart, inventory control; L. H. Robinson, stores; Weaver Barrett, receiving and storage; Bruce Sellars, shipping; and Samuel Bingham, materials handling engineer.

duced. Good paper was loaded into railroad cars or trucks or stored. "Broke" (scrap paper) was stored wherever there was room. Under the new set-up, shipping is, to a much greater extent than before, production's partner in paper manufacturing, not its subordinate.

Improve Shipping Methods

Shipping methods have improved substantially. Productivity of loading crews is higher because of better methods and organization. And Whitworth anticipates that improved procedures and use

of Integrated Data Processing will make it possible for the shipping group to cut five people from its clerical staff. Railroad cars are being moved in and out much faster than before. As a result, demurrage charges have been slashed from a high of \$2000 per month to less than \$200. This is quite an accomplishment for a mill that handles nearly 50,000 railroad cars a year.

When it comes to control of maintenance inventories, Champion, until recently, operated in a conventional fashion. Any item used repeatedly was stocked on a perpetual inventory basis. Whenever inventory dropped to the re-order point, stores sent a requisition to purchasing for a buy.

Hope to Cut Stocks 30%

But under a new system that's being put into effect, many items aren't even carried in inventory. Instead, maintenance will schedule its jobs far enough ahead so that purchasing can buy for each job. With this approach, material will be delivered and almost immediately used. There will be little need for direct maintenance inventory—except for an emergency stock to cover unexpected failures. Champion hopes to eventually be able to schedule about

75% of its maintenance work in advance. This won't bring a 75% reduction in maintenance inventory but it could cut stocks as much as 30% or 40%.

Raw materials inventories have also been slashed. Not too long ago, the plant carried more than thirty-days supply of raw materials. Now it gets along on a twelve-day supply. Whitworth points out that this drastic reduction wouldn't have been possible without the cooperation of materials and production personnel.

Champion is currently working on a company-wide inventory classification system that should make it easier to weed out surplus items. In addition, the Canton mill has set up an inventory control review board. Members include Whitworth and his staff assistant, Carter Rhinehart, the production manager, the manager of plant engineering, the plant maintenance engineer, and the special projects engineer. "Everyone who has the authority to make an inventory decision is on the board so that there can't be any buck passing once the board reaches agreement."

Board Meets Weekly

The board meets for one hour each week. Whitworth is chairman and Carter Rhinehart acts as secretary of the group. The board approves every item that is added to or deleted from inventory. It also approves all changes in max-min quantities on inventory items.

Describing the effectiveness of the meeting, Rhinehart points out that, "At the first meeting of the board, we had requisitions for ten items to consider and we managed to keep out \$3000 worth of inventory items." The board finds that demand for many items can be predicted in advance so there's no need to stock them. For example, one of the items rejected at the board's first meeting was a felt guide used on a paper machine. The life of the guide could be accurately forecast and there was no danger of the machines being disabled because of an unexpected failure of the guide. Rhinehart also uses a form (an "RARD" for Request to Add, Revise or Discontinue stores) that has to be filled out by anyone who wants to change the stock status of item (see cut, this page). No one is worried about the board's running out of business.

Keep Reducing Inventory

If an item can't be eliminated from stock, Champion can reduce its inventory with another basic purchasing technique: vendor stocking agreements. "We try to give our customers the best possible delivery service on paper products so I think it's only fair to ask our suppliers to do the same for us," Whitworth says. Vendor stocking makes it possible to get along on skeleton inventories of essential items. For ex-

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PRODUCTION MANAGER		
CONTROLLER		
MATERIALS DEPARTMENT MANAGER		
ENGINEERING DEPARTMENT MANAGER		

Champion employs this form to control additions, deletions, and revisions in stores inventories. The form is used as part of a general program to slash inventories.

Boost Efficiency With

Radio-Controlled Dispatching

One of the biggest improvements Champion Paper & Fibre has made in intra-plant transportation is the switch to radio-controlled central dispatching for its 45 trucks. If someone in the mill needs a truck, he merely telephones the dispatcher's office. The dispatcher then contacts the trucks by two-way radio. During a 24-hour period the dispatcher gets around 450 different assignments, makes 250 contacts with the drivers.

This system helps Champion Paper get more out of its trucks and drivers, since the trucks can be sent from job to job without the driver's having to report back to a central point. Supervision is also improved since the foreman can keep in touch with the drivers at all times.

Efficiency in the mill has also picked up. If a worker wants something from the storeroom, he can get his order delivered instead of having to make the trek himself. Trucks make deliveries five times a day to 20 drop areas in the mill.



The dispatcher is a busy man. In a 24-hour period Champion Paper dispatchers get about 450 assignments, have 250 radio contacts with drivers.



Driver supervision is made easier as result of radiocontrolled dispatching because foremen can keep in constant touch with their men.



Five times a day trucks make pickups in the storeroom and then deliver goods at 20 drop-points in the mill.

ample, the mill might have just one valve in reserve, where, without vendor stocking program, it would have to carry 12. With vendor stocking it can count on a local supplier store for the other 11 valves for Champion and be assured of same-day service if it's needed.

Whitworth is the first to admit that his appointment as materials manager made him much more inventory conscious than he ever was as purchasing agent. "As a P.A., you tend to think exclusively in terms of price, quality, and delivery and don't worry too much about how much it costs to stock the material you're buying," he observes. This newly developed inventory consciousness has already caused some previously sound buying decisions to be reversed. For example, purchasing used to buy steel conduit in truck load quantities. Now it willingly pays 6% more to buy in LTL quantities because the cost of carrying additional inventory is more than the saving made by

buying in larger quantities. This doesn't mean purchasing is any less price conscious than before; buyers spend about one-third of their time on V.A. projects,

Despite the many improvements that have already been made, Whitworth still has a lot of other ideas that he wants to put into effect. He won't discuss them just yet, but he makes it clear that he really means it when he says that he's just scratched the surface of materials management.



A Total Materials Program Pays Off

Materials management at Daystrom's electronics division goes across the board-from receiving to production control. Tight control at every point has meant better service to customers, lower operating costs, and higher profits.

T DOESN'T take long for materials management to start paying off. Only two months after the system was introduced at Daystrom's military electronics division in Archbald, Pa., Materials Manager Fred M. Seitz was able to report 31 specific achievements. Almost every one was a startling improvement in efficiency or a

reduction in operating costs. Here are just a few.

For the first time at M.E.D. it is possible to prepare weekly reports showing the exact status of each in-plant job.

Before reorganization, information about purchase orders, material requisitions, inventory levels, and manufacturing progress was never available from a single individual. If someone wanted to know where a customer's order stood, he had to check four departments. Today, a materials department project planner rides each job from start to finish and has the information at his fingertips.

Changes in handling purchase requisitions have eliminated four clerical steps, two copies of the requisition, and one file copy of the purchase order.

This is not the only clerical short cut for which materials management is responsible, but it is among the first. When material functions are divided among many departments there is inevitable duplication of work and files. Mere physical consolidation makes it possible to eliminate a large amount of clerical effort. For instance, when formerly production control issued a requisition to purchasing, it retained a file copy. In turn, it demanded a purchase order copy. Now, with production



Materials manager Fred M. Seitz confers with department supervisors Gerard B. Carroll (standing) who heads production control, and David G. Brady, in charge of purchasing.

This article and the one following make up a study of two aspects of materials management at the Military Electronics Division of Daystrom, Inc. The first deals with the function as a whole; the second with the effect it has had on the purchasing department as such. Both reports were written by John Van de Water, Technical Editor.

control and purchasing in the same office, a single file serves both and neither copy is required.

Elimination of all but one materials shortage list has cut out a lot of non-productive labor.

"Before we made the change," Seitz points out, "everyone kept shortage lists: planners, expediters, stock clerks, and buyers." As divided material responsibilities made it impossible to solve problems easily, shortage lists became an effort to place the blame on someone else. Central material control, on the other hand, pinpoints both the responsibility and the solution. At Daystrom the energy once used in writing shortage reports now is channeled into more productive work.

By assuming all material functions, the material department has lightened the clerical load of the project engineer. This lets him concentrate on engineering problems.

Reorganization Works

Before reorganization, making cost estimates, expediting work in progress, preparing manifests, etc., fell to the engineers lap because "there was no one else to do it." Logically, however, these functions belong in a materials department, and under materials management easily fall into place.

Consolidation and work simplification have made it possible to restore a vendor expediting group (once dropped for economic rea-

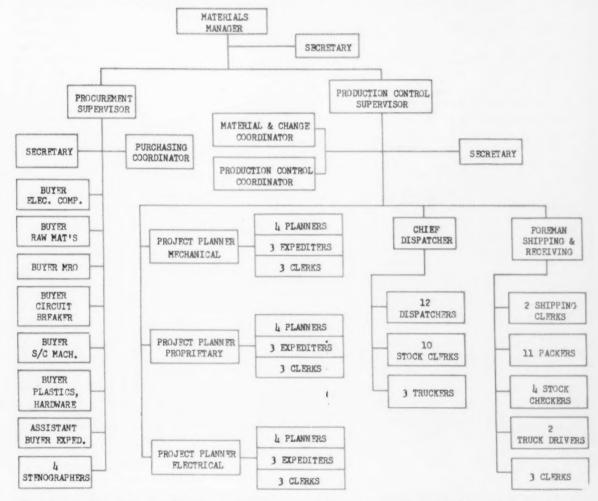
sons) without adding personnel.

Daystrom M.E.D. provides an impressive example of how materials management makes for better use of people. Prior to reorganization, material functions represented 10.5% of the total plant work force; a year later they were only 7.1% of the total. During this time the total work force had increased by 74% but material personnel went up only 18%.

"Buying by Expert" Pays Off

This large difference, the result of greater efficiency could not have been achieved without materials management. Although a strictly purchasing function may for a short time support a vastly increased manufacturing effort

Daystrom's Materials Group Is Tightly Organized



Organization plan of the materials department at Daystrom's military electronics division shows the relationships between purchasing, production control, inventory, receiving, and shipping functions.

simply by buying materials in larger quantities, a materials department does not have this choice. The number of stock clerks, dispatchers, packers, production control clerks, etc., is closely related to the manufacturing work force.

Freeing buyers from most expediting and clerical tasks has enabled purchasing to make buying assignments by commodity groups. Seitz calls this "buying by expert" and it has already paid off in savings of up to 10% on some orders.

Results of Reorganization

To cut the buying load even further, purchasing is currently setting up a series of blanket orders which eliminate both requisitions and purchase orders for a number of supply items. Requisitioners themselves will phone releases against the long-term orders.

In cooperation with quality control, the materials department has begun an active program of inventory reduction, particularly of steel. And it takes much less effort now than it did before reorganization. Once material has been certified usable by quality control, the whole thing can be handled by the material coordinator.

These are just a few of the immediate results of Daystrom's materials management system. Each is specific, measurable. Together they spell tight control of production schedules at lower costs and consequently faster deliveries of customers' orders and bigger profits for the division.

Why has materials management been so immediately successful at M.E.D.? There are two reasons: vigorous, forward-looking management, and understanding and acceptance of the total material concept.

Seitz, a former Daystrom P.A. who had left the company for the attractions of big-city purchasing, was rehired when company officials decided to put in materials management. He had long been a booster of the M.M. idea, understood the problems, and knew what he was after. As soon as he went to work, he focused responsibility on the project planner, physically consolidated the purchasing and production control groups, and began to cut out duplicate, overlapping, and useless functions.

Basic to Seitz' approach is "total materials management." Many companies who have tried M.M. have given it jurisdiction over only purchasing, inventory control, receiving, and shipping. Daystrom's materials organization includes production control as well, making it inevitably more effective. The result is much closer control of the work with far fewer people than ever before.

Duties of Purchasing

In the total concept, the materials department is responsible for getting the customer's order through the plant once it is released by the sales department. As Seitz explains: "I am responsible for material flow through the plant. I can't point the finger at anyone else. If a customer's order is held up in our area it is up to us to move it: if in someone else's area, we have to report the fact to plant management. The project planner is the nerve center. If the order is in trouble he knows why.'

The materials department is a prime activity at M.E.D., on a level with engineering, manufacturing, and assembly. Seitz reports directly to the plant manager. His department, in turn, is divided into two sections, purchasing and production control, each headed by a supervisor. Between them they are responsible for the orderly flow of raw materials, purchased items, subcontracted parts, and significantly, goods-in-process through production and the shipment of finished products.

As in most organizations, pur-

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Progress report prepared by project planners is most important innovation of materials department. Document goes to plant manager each week, covers both labor and material requirements and gives reasons for any delay.

chasing is responsible for the procurement of materials, supplies, services, and subcontracting. There is, however, one additional and important duty—purchasing also prices all the "buy" items for jobs in estimating. Two buyers spend most of their time pricing purchased parts for sales proposals.

Schedules Production

Production control, headed by Gerard B. Carroll, has three major functions:

 production planning and scheduling:

 directing the movement and routing of material through the plant;

 monitoring and expediting the progress of work in the shop.
 The production control supervisor also heads inventory, dispatching, shipping, and receiving groups.

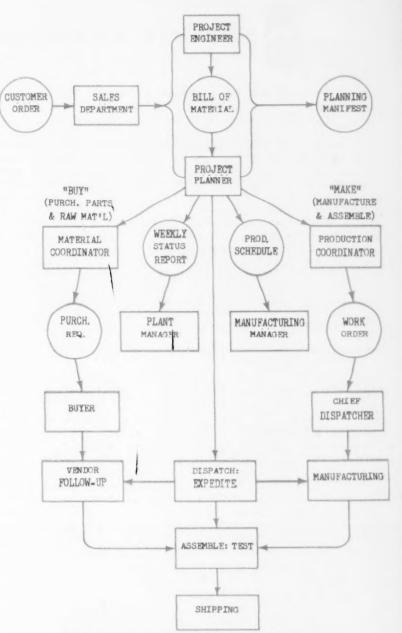
At the center of M.E.D.'s 97-man materials department is the project planner. He is responsible for scheduling each order in detail from engineering to the moment it is shipped to the customer. He also makes sure that the schedule is rigorously followed step by step. It is not surprising then that performance has improved significantly. Seitz reports that "despite short lead times inherent in many of our contracts, the number of jobs on-schedule has been substantially increased."

Staff Is Flexible

The three project planners are each assisted by four planners, three expediters, and three clerks. The staffs, however, are not rigid, and vary in size and composition with the work load. One group handles mechanical contracts; a second, electrical; and the third, M.E.D's only standard product, a line of miniature potentiometers. The division makes electronic equipment not only for the military but for major control, communication, and computer manufacturers as well. Its products range from tiny devices to radar antenna supports 12 ft in diameter. Except for the potentiometers, every order is special and built on a job-shop basis.

The production cycle starts

Project Planner Is in the Middle



Flow chart shows central position of project planner who is responsible not only for planning each production job but for seeing that schedules are met through final shipment.

when sales releases the customer's order simultaneously to engineering and production control. Working closely with the project engineer, the planner sets up a complete schedule which takes the job through engineering, requisitioning, manufacturing, assembly and test, up to the exact shipping date.

The planning group not only determines material and purchasing requirements but plans the machine load and the exact hours per week of labor needed to complete the job. From bills of material they receive from engineering, planners write up purchase requisitions, schedule stock materials from inventory, and pre-



Materials Management Togetherness

"Materials management creates a sense of belonging," says Daystrom's Fred Seitz.

Psychologists agree that most people work better when they are part of a team—especially when isolation means being under constant pressure from groups outside one's control. A storekeeper, asked if he liked the new set-up said, 'You bet!' This used to be Siberia. Now I got bosses who are interested in what I'm doing."

Supervisory interest pays off. A good example is the change in receiving at Daystrom M.E.D. Normally receiving departments operate in a virtual limbo: ignored by management, scorned by others as marginal, unproductive. However, when materials management took over, receiving was overhauled, its filing system simplified, procedures modernized. As a result morale is higher and materials move

100% faster.

Because materials management consolidates functions that are closely related, it brings together people whose work otherwise tends to overlap. When their loyalties are divided they fight, now to assert authority, now to avoid responsibility. But they eagerly cooperate when united in one department where duties are clearly defined.

Most important, materials management gives people stature. Where before they performed seemingly insignificant tasks isolated from the main work of their departments, they now become part of an important group with wide responsibilities. They see how their work contributes to the whole. They get the feeling of being in the know. They belong to an organization that is productive, effective—one they can be proud of.

pare work orders for the shop. Much of the detail is handled by data processing. On large repetitive contracts for instance, punched cards replace bills of material and machines sort them into make, buy, and stock groups.

Plan Follow-Up Carefully

Once the job is in progress, planning group expediters take over to make sure it stays on schedule. As shop expediters they, on the one hand follow up manufacturing and assembly to determine job status; on the other, work with purchasing to insure on-time vendor performance.

The efficiency of a central materials organization makes itself really felt in follow-up. Before the present system was installed, project engineers spent a lot of time expediting the shop. Now production control has absorbed the function completely. Project planners and engineers still work together very closely, but only to get good technical coordination. Engineers have been relieved of routine clerical details altogether.

Right now an assistant buyer in purchasing handles expediting,

but Seitz expects to transfer the work to the planning group expediters. "On some of the special projects we are beginning to let them contact vendors themselves," he explains. "As long as production control and purchasing are in the same department there's not much chance it will get out of hand." Such a set-up will, of course, save purchasing many routine follow-up calls and will give buyers more time to devote to procurement problems. There is little chance that buyers would lose contact with vendors' performance; in difficult cases they would get in on the followup job anyway, and proximity to production control keeps buyers well-informed.

From the information that constantly flows into the materials department, planning groups each week prepare a complete set of progress reports—one for each production job. These go directly to the plant manager. He knows at a glance which jobs are on time and which are delayed. The reasons for behind schedule work are spelled out and corrective action noted. Planners report upto-date shipping schedules and

the exact number of shop hours required and actually used by manufacturing and assembly.

The progress report is a good indication of the value of completely centralized materials management. It leaves no doubt just where a customer's order stands. There is no need to check purchasing, manufacturing, and shipping to get an answer. The project planner has all the information, not by chance, but because it's his specific job.

Changeover Is a Success

The production control supervisor uses labor figures in the status reports for a manpower report to management. It projects for six months the amount of plant labor needed. Covering engineering, inspection, manufacturing and assembly, figures are based both on anticipated orders and on those already on the books. In this way the department plans manpower as well as material requirements.

In spite of the short time (about 16 months) it has been in existence, materials management has already given plant officials a tool for measuring plant per-

formance and forecasting plant requirements. But as Seitz says: "I think we've only scratched the surface in these early stages. There's a lot more we'll get out of this that will prove the basic soundness of our planning."

Materials management at Day-

strom M.E.D. has long range objectives that call for even more effective methods. These are some now in the planning stage.

—Complete mechanization of the clerical functions of the materials group, from estimating to final shipment; —Further consolidation of all material functions eliminating all duplicate and unprofitable activities:

—The development of flexible, competent personnel through training programs and rotating job assignments.

Does Materials Management Hurt Purchasing?

What happens to purchasing when materials management takes over? At Daystrom's military electronics division in Archbald, Pa., the change has been all to the good. As an influential section of the material department, purchasing has been upgraded from the subordinate position it once held. Reorganization has given it a chance to do a better buying job. New achievements have brought recognition. Morale is higher. Gone is the low-manon-totem-pole feeling.

Purchasing Is Important Link

The improvement results directly from the full coordination of material functions. No longer is purchasing the last link in the material chain, always under pressure. Instead, it is now an important part of a productive unit, the materials department, whose project planners schedule engineering, manufacturing and assembly operations with purchasing needs in mind.

"There is no function that has suffered from the changeover to materials management," says Fred M. Seitz, a former purchasing agent who now heads up the 97 - man materials department. "We have better control. There is pinpointing of responsibilities throughout. It's the project planner's job to get the customer's order through the plant. He can't pass the buck for material shortages to purchasing. As the first step in production, purchasing is a vital, integral part of the entire manufacturing process."

M.E.D.'s purchasing group is headed by Procurement Supervisor David G. Brady, formerly a buyer. His 14-man purchasing team spends more than \$6 million a year. The group includes six buyers, a purchasing coordinator, an assistant buyer, a secretary, and four clerks.

This is what materials management has meant for purchasing:

—More influence—on other departments, vendors, even customers;

—Simplified procedures that mean less routine work, more time to buy;

-More information, both about

plant requirements and about purchasing results such as vendor performance and product quality; —Wider training of personnel and consequently better chances for advancement within the company.

Give Accurate Estimates

Streamlined organization has enabled purchasing to take over some of its rightful functions that have been handled by other departments. In doing so, it has gained prestige and respect. For example, assigning two buyers to price purchased items for new job estimates has relieved the engineering department of this task. At the same time it eliminates



Materials Manager F. M. Seitz: "Purchasing is an integral part of the manufacturing process."

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Blanket orders, such as this for stationery supplies, will help purchasing reduce the daily buying load.

the problems in having engineers deal with vendors.

This arrangement, a boon to both purchasing and engineering, assures accurate quotations to the customer. There's no more estimating or guessing at prices. Purchasing uses vendor quotations, price lists, and previous orders to make accurate estimates that will also provide a budget to meet or beat when sales finally lands the customer's order.

More Savings Possible

Purchasing shares the broader outlook on customer requirements that develops in a materials management group. Buyers seek competition and better value, even when vendor sources may be specified by the customer himself (not uncommon, since Daystrom is a subcontractor for electronic systems manufacturers).

A good example: purchasing was paying \$8.50 a thousand for a screw machine part that goes in a small circuit breaker M.E.D. makes for a computer manufacturer. The customer had designed the part long before Daystrom got the job. "The price looked high to us," says Seitz. "So one of our buyers went to work and eventually came up with a source that could make the part by coldheading at a price that surprised even us-\$1.52 a thousand." Armed with figures like these, the materials group had little trouble persuading the customer to allow a design change, and purchasing got credit for a substantial cost reduction.

This is only one of the dozens of savings purchasing has made since it became part of the materials group. Not all have involved the customer so directly, although buyers have been able to reduce prices on other solesource orders. One significant example is a reduction of more than 10% that one buyer negotiated out of a total commitment of over \$60,000.

Seitz and Brady credit materials management organization with making these savings possible. Consolidated material functions mean less routine and clerical work for buyers, giving them more time to buy, a better chance to seek lower costs. "The savings are there," says Seitz, "all we need is the chance to use the buying techniques we know."

Blanket Orders Help

Materials management has taken the expediting load off the buyers' shoulders and given the job to a specialist. In time, follow-up may be taken out of purchasing altogether and transferred to production control expediters. They now have to ask purchasing for the status of purchased items, an indirect and inefficient procedure.

One of the best ways to ease the daily buying load is to reduce the number of requisitions the buyer has to handle and, consequently, the number of orders he has to place. M.E.D. is doing just that with a system of blanket orders, especially for maintenance and operating supplies. "We are out to cut paperwork," says Seitz, "and blanket orders do that better than anything I know."

So far the ideal system has been applied only to stationery and office supplies. The blanket order covers a six-months supply of 103 different items, limited to a total value of \$5000. An itemized price list, firm for the period of the order, is attached. The work-saving feature of the system is that the stationery clerk, an employee of the divisions office service group, deals directly with the vendor to release shipments against the order.

Seitz expects to use a similar procedure for mill supply purchases, letting maintenance foremen telephone releases against blanket orders set up by purchasing. "We now have a few blanket orders with MRO suppliers," he explains, "but buyers release the material. The next step is to let the requisitioner do it."

Cuts Paper Work

In either case, purchasing writes no release orders, which has eliminated most of the paperwork. To maintain control, the materials department uses the packing slip as a receiver. It is signed by both receiving clerk and requisitioner to insure that goods received were actually ordered. For payment, accounting compares the signed packing list with the invoice.

These time-saving operations have made it possible to organize the purchasing department more efficiently. Specialized buying is one result. Brady has divided buying assignments along commodity lines, giving each man a chance to specialize and become expert in his line. This has made it easier for salesmen to find the right buyer and just about eliminated the need for one seller to deal with many buyers on related products. It saves time for all concerned.

Under materials management buyers not only learn more about the products they buy but they also stay better informed about production and manufacturing in their own company. Close cooperation with production control shows the buyer how procurement is in effect materials management applied to the vendor. It gives him the background to apply cost, quality, and production control techniques to the vendor.

Can't Use Vendor Ratings

In the same way, close association with project planners keeps buyers on top of vendor performance. This is particularly important because quantitive vendor rating systems don't help M.E.D. "In our type of business vendor ratings would mean very little," explains Seitz. "We have many unusual requirements and don't use the same vendors from one customer's order to the next. When we act as subcontractor we often deal with specified sources



Consolidation of buying group (front) with production control has increased department efficiency while opening up new opportunities for its personnel.

which we can't change except for special reasons. We must therefore depend upon the buyer's impression of vendor performance.

"Now that buyers are commodity specialists," they get to know the vendor better than before. And under materials management purchasing and production control are sufficiently close for buyers to know how a vendor is performing. When purchasing is isolated, the buyer hears no more about an order once he has placed it—unless there's trouble.

"But when the functions are consolidated in one department, and buyers and planners work within sight of one another, there is a constant flow of information between them; especially details of vendor performance and order status."

Provides Broad Training

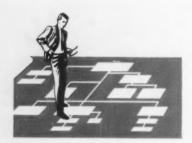
Only the materials management type of organization gives buyers and other purchasing employees a chance at unusually broad training and experience; something particularly important for job advancement. In fact, one of the main reasons why buyers and many P.A.'s don't move up to higher management positions is their lack of training in other company functions, Divided material responsibilities isolate each group from the mainstream of plant operations. Purchasing personnel especially tend to remain ignorant of the very production activities which they are expected to service.

Materials management solves this problem by giving buyers and purchasing agents a chance to function at the heart of a company-wide activity. It brings them close to production. It makes them aware of customers' needs. It transforms purchasing from a whipping boy to an important factor in planning and scheduling.

Will Exchange Jobs

Materials manager Seitz isn't content to leave training to chance alone. He has already started a program of job rotation which will affect his entire department. As buyers become proficient in their assigned commodities they will exchange duties until all are familiar with the materials M.E.D. buys. Seitz envisages rotating buyers with project planners and has even started a program of supervisory diversification. Here production control and purchasing supervisors will exchange assignments in order to promote departmental flexibility and to develop each man to the fullest extent of his ability.

No other materials system can approach the scope of these concepts or offer its personnel so much opportunity. It is evident that at Daystrom at least, materials management is not only adding a new dimension to management; it is developing a new source of managers.



Managing Materials In A Small Company

Is MATERIALS management possible for a small company? Just ask Clayton Bowman, P.A. for Wesel Manufacturing Co., Scranton, Pa., a supplier to the printing industry. He thinks materials management is great.

"For a small company," says Bowman, "it strikes me that the best way to control materials is to have one person supervising purchasing, stores, shipping and receiving." He should know, since he heads up a five-man materials department for a company with only 65 employees. Making up Bowman's department is a secretary, a storekeeper, a combination receiving-shipping clerk, and a general assistant whose main job is to keep materials moving through the plant.

In his long experience with small company materials management, Bowman has found that it has a number of important advantages:

 Because he is in a position where he is able to keep track of both material requirements and work in progress, he can make sure there are no shortages.

 Putting both stores and purchasing under one person makes it possible to use simpler methods to bridge the two activities.

 There is no rivalry or buckpassing among the material functions. This eliminates the bottlenecks that often exist under divided control. • Compared to a conventional P.A., the materials manager has greater scope, more chance to contribute to the business, and a stronger voice in management.

Keeps Up With Departments

Bowman finds another advantage of materials management is that it puts him in close touch with sales and manufacturing. He feels that this arrangement makes it easier to keep material flowing. "I'm familiar with everything in the shop," he explains; "with production jobs, sales orders, even maintenance work. And, of course, I know what materials are on order for each job."

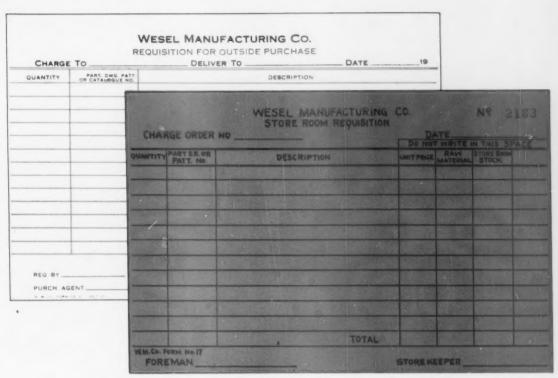
Because Wesel is a small company it is relatively easy for him to keep his finger on these activities. Open orders, for instance, rarely exceed 150 at any moment. The open order file is a binder on Bowman's desk—always in front of him, always immediately accessible. "Because the quantity is small, I can really keep up," he says. "I know the status of practically every order, and it is easy to follow up the ones that need expediting."

Coordinated material functions make it possible to keep the system simple. Bowman's storekeeper occupies a strategic position: clearing house for all production material requirements. This arrangement places the material burden where it belongs, relieving other departments which are often saddled with some of these functions under the conventional purchasing set-up. Engineering, for instance, does not have to write requisitions. Instead, it just sends its bills of materials directly to the store room. The bill of material lists what's needed for each job. The storekeeper breaks the list down into raw materials, purchased parts, and shop work. He sends orders for shop work to the manufacturing manager and supplies raw materials and stocked parts for the job as needed.

Use 4 Part P.O.

Stores writes requisitions for all purchased production materials, both those needed to replenish inventories, and the special or low usage items ordered from the bill of material. Bowman receives requisitions for operating and maintenance supplies from shop foremen.

The purchase order form used by the Wesel Co. is extremely simple. Just one copy, the original, goes to the vendor. A second copy goes into Bowman's open order file and he keeps a third in a bring-forward file for expediting. The fourth (blue) copy travels through the plant. Each day the accumulated blue orders go to accounting for preliminary posting; then to receiving. When the material comes in, receiving returns the blue copy with packing



The storekeeper writes requisitions for all production materials; both for items carried in stock and for specials called for in en-

gineering's bills of materials. Shop foremen prepare requisitions for maintenance and operating supplies.

list and receival to purchasing. Bowman's secretary posts receiving information on the open order copy and holds the file for the invoice. Purchasing approves the invoice, posts the data on the p.o. file copy and sends it with the blue p.o., packing list and receival to accounting for payment. If the order is incomplete the blue copy goes back to receiving instead of accounting.

With Bowman in charge of each step of the procedure, there is little chance of anything going seriously wrong without his knowing it. Another advantage stemming from Bowman's wide range of responsibilities is that it gives him a strong management position. He attends monthly management meetings, but can call special meetings when necessary. "I believe I have more influence with other departments in the company, than a P.A. who just handles procurement," he says.

This added authority pays off when Bowman wants to recommend source changes for engineered components. Because the Wesel company manufactures many special machines and does subcontract manufacturing for other machinery builders, the engineering department normally selects sources of critical parts, such as controls, motors, bearings, etc. This, however, does not prevent Bowman from seeking lower prices or improved delivery when he is not satisfied with a chosen vendor's performance. "If I want to change a source" he explains, "engineering will go along with me. We work so closely that these decisions are made very simply."

Counts Transportation Costs

Like most P.A.'s Bowman is extremely cost conscious. But because of small volume he can't do much in the way of quantity buying, and there isn't much room for value analyses. As a result, he is mainly concerned with finding the sources with lower prices, better quality. And, of course, he tries to save on transportation costs.

"We are becoming very conscious of transportation charges," says Bowman. "The minimum trucking charge from Philadel-

phia is now up to \$4.05. If vendors ship you a lot of small packages they can break you." Together with his receiving clerk, Bowman keeps an eye on vendors' shipping practices. This requires constant vigilance so Bowman would prefer to order more from local suppliers.

"But," he points out, "in our location we have to depend on sources outside the immediate area. I can't get special metals in town, for instance. And I also have to go outside for high-quality or close-tolerance plating work." Where possible, however, he develops local suppliers. The way he buys castings is a good example.

"We use many castings and therefore have to work with a number of different foundries," he points out. "We used to deal mostly with the big producers around Philadelphia. But now we have a good foundry in Scranton and I have been able to develop him into a dependable source. This is saving us a lot in transportation costs."

(Please turn to page 187)



They make piston pins faster for less money with (USS) National Seamless Mechanical Tubing

It takes plenty of machine time to drill and machine the holes in 6,500,000 piston pins a year. That's what one major auto company* had to do . . . until the switch to USS National Seamless Steel Mechanical Tubing. By eliminating the need to drill holes in the bar stock, the company got rid of six chuckers formerly used for drilling, saved time as well as the power they consumed and the space they occupied.

USS National Seamless Tubing has dimensional accuracy. It has no hard or soft spots. It's made by people who know more about seamless tubing than any other manufacturer in the world. You can choose from a complete range of sizes and steel grades. Find out how USS National Seamless Mechanical Tubing can be most effectively applied to your designs. Contact your nearest National Tube Distributor soon.

Name supplied on request

National Tube Division of United States Steel





Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributers United States Steel Supply Division United States Steel Export Company, New York

What's the Second-Half Business Outlook?

There appears to be no doubt that the recession is over and that the economy is on the way up again. But will the business pickup be sharp or moderate? What will happen to prices? Will there be a stampede to build up industry's generally low level of inventories? To find out the answers to these and other questions concerning the second-half business outlook, we surveyed 1000 purchasing executives. Their combined answers to this questionnaire follow:

1.

How do you think the general business outlook for the second half of 1961 compares with the record of the first half? Much better

Slightly better

About the same

Slightly worse

Much Worse

Higher

About the same

Lower



10%





34%



2.

Do you expect that your company's purchasing volume in the second half will be higher or lower than in the first half?



THE BEST
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CAN'T HELP
YOUR BUSINESS
IF YOU
DON'T KNOW
ABOUT THEM

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He's one of our Communications Consultants. He brings "ideas."

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He's trained to analyze business operations and to find better, more profitable ways to use modern communications.

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The one source for all business communications

Purchasing Opinion

3.

Do you expect the general level of prices on purchased materials in the second half to be higher, lower, or about the same as now?

Higher

About the same

Lower

4.

Higher Prices:

In what specific commodities do you expect significant price changes?

Lower Prices:

5.

Increase

What change do you anticipate in your inventory position during the second half?

No Change

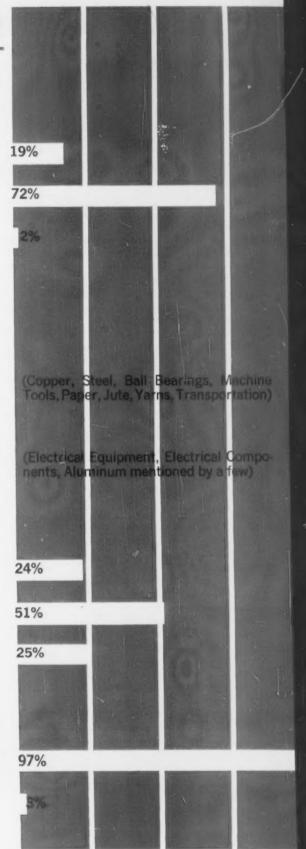
Decrease

6.

Do you think that the recovery from the 1960-61 recession will be moderate or sharp in the second half?

Moderate

Sharp



Strong, High Quality Steels **Reduce Costs**

THE TREND to stronger, higher quality steels is continuing at a rapid pace. Developments recently announced by leading producers point to potential weight and cost savings in both structural and machining grades.

Among the new developments are these three:

. U. S. Steel announces the first commercial production of rolled structural shapes made from quenched and tempered alloy steels. It has also added to its line a stronger free-machining plate that can speed production by as much as 50%.

· Jones & Laughlin offers a new high strength, low-alloy steel to take the place of its Jalten 1 grade.

 Crucible Steel installs a high-vacuum degassing process for basic steelmaking that can lead to greatly improved alloy

Structural shapes rolled from U.S. Steel's T-1 alloy have design strengths as much as three times those of structural carbon steel. Supplied in I-beams, channels, and angles, the new shapes will eliminate the need for users to cut and weld their own structural sections from alloy platewith savings up to 30%.

Ease Designers' Work

Designers will be able to specify off-the-shelf shapes with minimum yield strengths of 100,000 psi. Used as structural members in machinery and mobile equipment, T-1 sections will enable manufacturers to design for maximum payload with minimum dead weight.

In buildings, bridges, and other structures, the stronger material will mean weight savings not only in the finished structure but also in the tonnage of material that has to be shipped to the job and handled during fabrication and erection.

Bridges the Gap

Advance field tests with the corporation's free-machining plate, Fremax 45, indicate that it will bridge the gap between lowcarbon free-machining steel and the alloy types. The new plate, with a carbon content in the 0.45% range, is intended for highstrength wear-resistant applications where superior machinability, easy flame hardening, and longer tool life are required.

In one test, machinists were able to increase both milling feed rate and spindle speeds with Fremax 45. The result was a 50% increase in milling production with no burning or damage to tools. In applications such as gears, rings, and rolls, the plate can be flame hardened easily. The material's tensile strength is in the 90,000 psi range.

Simultaneously with the announcement of a high-strength low-alloy steel, Jones & Laughlin Steel Corp. has realigned all its high-strength grades. The new material is a nickel-copper-ti-

(Please turn to page 100)



A worker checks channels of USS T-1 alloy steel for straightness before they enter the tempering furnace.





New Carb-O-Lock insert combin offers unhear 30% and mor when you buy 40% and mor

edge when yo

Astonishingly in design; so It's new...it'

Revolutionary... toolholder-insert combination cuts tool costs up to 40%

This is the shape of the sixti k toolholderbination eard of savings... nore buy it!

nore per cutting you use it!

gly simple so easy to use. .it's Carb-O-Lock! Think of it! Now you can cut your disposable tooling costs by up to 40%! This revolutionary Carb-O-Lock toolholder-insert combination costs 30% less to buy than ordinary toolholders . . . costs 40% less to use. You save and keep on saving, because savings are designed right into the new Carb-O-Lock toolholder-insert combination.

The Carb-O-Lock is truly unique in toolholder design. Simplicity is the key! Carb-O-Lock employs just three parts (not including insert) — compared with up to 12 parts in other toolholders. Using a camaction locking principle, the Carb-O-Lock toolholder makes insert changing and indexing a breeze . . . easy as one, two, three! And the streamlined design of this revolutionary toolholder lets you bring it closer to the work, with unrestricted chip flow. No clamps . . . no "clubheads" . . . no complex mechanisms.

HANDLES MOST OF THE FOLLOWING MACHINING JOBS

Carb-O-Lock toolholders are available right now in toolholder shank sizes from ½" square to 2" square for square inserts and ½" to 1½" on toolholders for triangular inserts to be used profitably in your shop. The specially processed close-tolerance, disposable inserts have been developed in Carboloy® Grade 883 for machining cast iron as well as many operations on the following materials: high-temperature alloys, type 300 stainless steel, brass, and bronze.

Look over the features on the next page. See just how this brand new toolholder-insert combination can mean big savings in your metalcutting operation. Phone your Authorized Carboloy Distributor and place your order. Then use Carb-O-Lock—designed to bring you even better profits through better tooling.

Great! . . . revolutionary!

Metallurgical Products Department of General Electric Company, 11173 E. 8 Mile Avenue, Detroit 32, Michigan.

METALLURGICAL PRODUCTS DEPARTMENT

GENERAL



ELECTRIC

CARBOLOY® CEMENTED CARBIDES • MAN-MADE DIAMOND • MAGNETIC MATERIALS
THERMISTORS • THYRIT® • VACUUM-MELTED ALLOYS

General Electric announces

Carb-O-Lock

the single, most important advance in the whole history of disposable tooling!



Sim

Check th

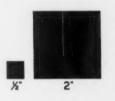
The all-new Careason: To redu

LOW, LOW S

No "clubheads," clamps up to take up space of chip flow – not even of (½" square shank) Ca to wash off or wear aw

FEWER PARTS

Carb-O-Lock employs just the parts (not including inser Hard-tough cam pin, Carbo carbide seat, heat-treated sha Results—decreased parts invitory, absolute minimum posility of part failure, great reduced downtime, lower placement-part cost, and low over-all cost.





LOOK ... NO

Carb-O-Lock gives you larg angle because no pocket insert. Can often be use applications with limitation

TOUGHER

The cam pin in the Carb-Lock is a high-alloy beari steel. Has not broken und the severest use. Cam acti forces insert against shar so insert stays locked in plauntil you loosen it. Cam pis adjusted from underneath locating wrench socket ... makes indexing and changir

plicity is the key

these features...

v Carb-O-Lock toolholder-insert combination was developed for just one reduce your present machining costs. Can it? Yes. Here's why . . . and how.

W SILHOUETTE

amps, or screws sticking ce or interfere with the en on the smallest size) Carb-O-Lock. Nothing r away.



st three insert): arbolov dshank. s invenn possigreatly wer red lower



PICK THE ONE YOU NEED

Carb-O-Lock comes in 15 styles, 124 sizes for triangular and square inserts. Shank sizes from \(\frac{1}{2}'' \) square (use it to replace your brazed tooling, too!) to 2" square.



O POCKET!

arb-Opearing

larger end-cutting edge ket is needed to retain used on many tracer tations on plunge angle.



REDUCED OVERHANG

Reduces space requirements for locking mechanism-less deflection and vibration. This means less insert chipping and breaking, for longer, more consistent tool life.

ONE-TWO-THREE INDEXING

IS ALL YOU NEED. JUST TWIST,



REPLACE OR INDEX INSERT,



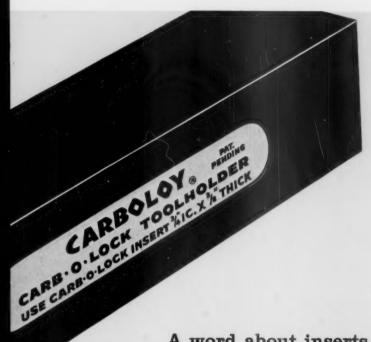








to the new Carb-O-Lock



A word about inserts





Specially processed Carb-O-Lock inserts are available now in Grade 883, triangular and square. These inserts are held to tolerances of ± .002" on 1/4" I.C. to ± .004" on the 1" Sq.. They cost 40% less than some precision-ground $(\pm .001")$ inserts.

These inserts have cutting edges composed of whole carbide crystals which are stress free, and notch free like Carboloy Pre-Honed inserts.

And here's important news. Carb-O-Lock inserts are designed to fit most square or triangular negative rake toolholders you may now be using. This means that while you are changing your operation over to Carb-O-Lock, you can begin by buying the new inserts. Then, as you replace your present toolholders, just order the new Carb-O-Lock. Simple.

NOTE TO SPECIALIZED SHOPS

We can't overstress the importance of the Carb-O-Lock toolholder-insert combination to those who are not using carbide disposable tooling in their machining operations. Up until now, if you wanted to use disposable-insert carbide tooling, the cost of the toolholders may have represented an investment that was larger than you cared to make.

Not so now. No longer must you settle for second best. Because the new Carb-O-Lock fits easily into your tooling budget. Now you can have the quality of carbide tooling at the lowest cost ever - even lower than your present tooling. And the broad range and sizes give you the flexibility that makes carbide tooling on small-lot jobs economical. Check into it . . . and see!

... and about packaging



Carb-O-Lock inserts come skin-packed on a color-coded card with complete identification which fits in a standard 3" x 5" file drawer for easier storage and inventory, faster identification, simpler handling.

Carb-O-Lock Grade 883 inserts are skin-packed - five or ten to a card depending on size. This means: Easier inventorying • Chipping is eliminated · No surface contamination from handling . Color-coded grade identification • Cards fit standard-size filing cabinet.

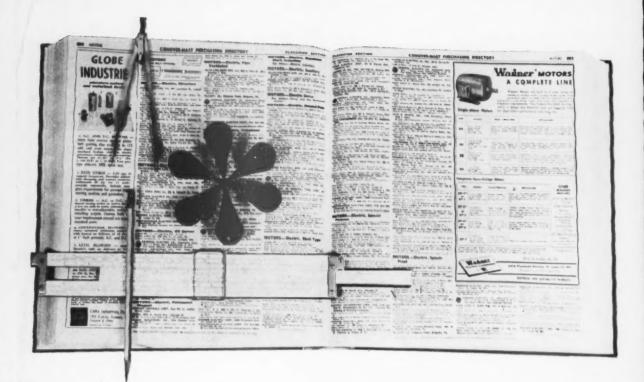
Your Authorized Carboloy Distributor can supply you with the new Carb-O-Lock inserts in Grade 883 now. Call him today.

METALLURGICAL PRODUCTS DEPARTMENT

GENERAL ELECTRIC

CARBOLOY. CEMENTED CARBIDES . MAN-MADE DIAMOND . MAGNETIC MATERIALS THERMISTORS . THYRITE . VACUUM-MELTED ALLOYS





*Value Analysis Starts Here

Good suppliers are the foundation of any value analysis program. CONOVER-MAST PURCHASING DIRECTORY gives you a reliable list of manufacturers of industrial products. It gives you:

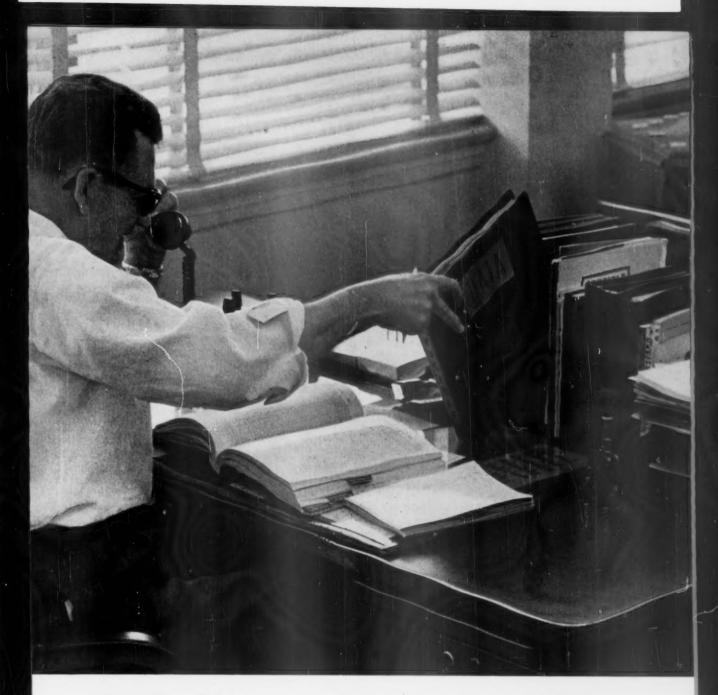
the company name,
address,
telephone number,
size of company,
and necessary technical data.

Next time you use a directory, use CMPD.



Conover-Mast Purchasing Directory

205 E. 42nd St. New York 17, N. Y. MU 9-3250



Call Crucible for fast answers to tough questions

The inside account salesman is your direct line to Crucible's warehouse of technical know-how on special steels.

He can give you analyses, tempering times and temperatures, and even recommended speeds and feeds. He'll ask you intelligent questions. He may make suggestions. If he does, listen. His suggestions could help solve your problem.

Integrated staffs of steel experts

back up the inside salesman. So if he can't answer your questions quickly, he can refer them to sales-service engineers in his office who specialize in tool steels, stainless and alloys — or to regional customer technical service engineers whose specialties range from chemical engineering to welding and metallurgy — even to research metallurgists at Crucible mills, many of whom are world-famous for their discoveries in metals.

Ask about your Crucible steel center's many services the next time you talk to the inside salesman servicing your account. Or write: Crucible Steel Company of America, Four Gateway Center, P. O. Box 88, Pittsburgh 30, Pa.



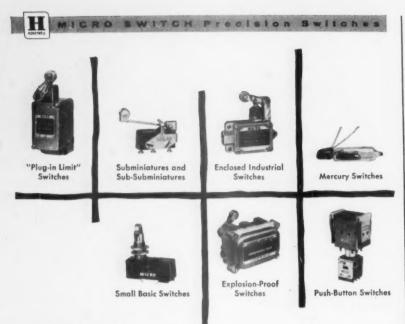
CALL CRUCIBLE

 and ask to have your name added to the mailing list to receive local stock lists.



CRUCIBLE

STEEL COMPANY OF AMERICA



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When you recommend a switch, you want to be sure of its reliability. Switch reliability is constantly tested in MICRO SWITCH's test laboratories during design, development and production—part of one of the most exacting quality control programs in the industry. Modern equipment makes it possible to exactly simulate actual operating and environmental conditions. That's why you can recommend MICRO SWITCH to your engineering and production men with confidence. It's the best way to be sure of precise control and continued reliable performance. And MICRO SWITCH offers you the most complete selection of small snap-action and mercury switches available.

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Call your nearby Branch Office. It will save you valuable time in switch selection. MICRO SWITCH field offices in 28 principal cities are staffed with experienced factory-trained sales engineers who spend their full time assisting customers on switching problems. These switch specialists can help you.

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For More Facts Write No. 200 on Information Card-Last Page

Strong, High Quality Steels Reduce Costs

(Continued from page 92)

tanium steel with a minimum tensile of 70,000 psi and up to four times as much resistance to atmospheric corrosion as carbon steel.

The company's Cor-Ten grade, now being produced under license from U. S. Steel, replaces Jalten 2. The high-strength grades come in hot and cold rolled sheets, galvanized sheets, regular and floor plates, and hot rolled bars and small shapes.

J & L's new grade combines strength with good forming qualities and high weldability. Major applications will be in the mobile equipment fields, including railroad, mining, construction, and materials handling machinery.

Result: Faster Deliveries

Crucible Steel's installation of a vacuum degassing unit at its Micland works won't be followed by the introduction of spectacular new steels. However, industry observers believe the process will make a significant contribution to basic steel making. The company is primarily interested in making high alloy steels that are stronger, tougher, and cleaner—and therefore more dependable than those in use today.

The vacuum unit is the first of its type in use in the United States. It was built by Lectromelt under license of Dortmund-Horder in West Germany. The process removes hydrogen, oxygen, and nitrogen from the molten steel. Some carbon and manganese is also lost, but this is compensated for in advance or through later additions.

To the user, a number of advantages seem likely:

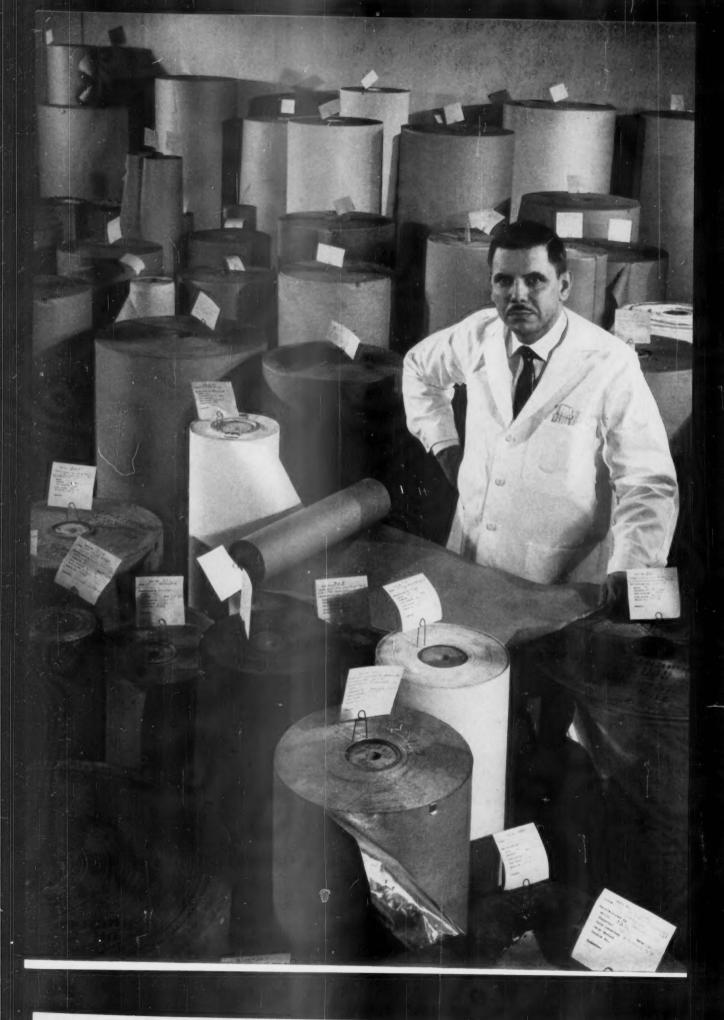
—Faster deliveries because the long soak now needed to eliminate hydrogen will be unnecessary;

—Cleaner and better quality alloy steels that will have more ductility, higher impact resistance, and greater reliability than present types;

—More uniform steels, meaning more dependable response to heat treatment, through closer chemical control.



There is a totally new grinding wheel so genuinely good that you'll want no one but your tool room skeptic—the man least likely to be impressed—to make the test. Set up on one of the super-hard tool steels, or on a rugged circular-form grinding job. Together you will experience the rare pleasure of discovering something entirely new and honestly superior: a wheel with the staying power to grind farther and faster than any other you have known. The wheel to specify is Carborundum's PA-V40 (the initials PA stand for a totally new abrasive grain). To arrange an immediate test, simply call your Carborundum distributor or factory representative.



He knows all the right combinations

Using coatings and laminations, Union-Camp's Bob Harris has given corrugated boxes a host of amazing new properties.

Our photograph shows Bob Harris standing in a forest of containerboard stock, paper and laminating materials. Here, he is comfortably at home.

He should be. Bob is a chemist, and a Project Supervisor at Union-Camp's Product Development Laboratory. Coatings and laminations are his specialty. Guesswork plays no part in his research.

"Today, thanks to coatings and laminations, there are few limitations on what you can package in corrugated," says Bob. "Using them singly or in combination, we can give corrugated boxes any number of protective properties. Water repellency, for example. Or snag and scuff resistance. Or resistance to acids and grease.

"We can coat the inside of a box so that it won't scratch the finish of an expensive hi-fi set. We can create moisture barriers for packaging soaps and other types of products.

"Everything we do is aimed at making the package more efficient by providing increased protection and reducing costly damage."

Recently, Bob and his group perfected a special release coating which is applied directly to the box. It prevents materials such as rubber or asphalt from sticking to the interior surface of corrugated boxes.

Bob Harris has also worked some minor miracles in improving the *printing* surface of Union-Camp containerboard. Using a special clay coating and resinous binder, an extremely smooth surface is provided that takes printing beautifully. The clean, sharp impressions that can now be achieved enhance the display value of the box and the sales appeal of its contents.

What lies ahead for corrugated combinations?

Bob and the rest of Union-Camp's development team are hard at work investigating new coatings that will result in even greater protection and economy for Union-Camp customers. This work is being carried on in a laboratory that can duplicate any shipping hazard a box is likely to meet in actual use. Its facilities include special environmental rooms that can simulate the heat, cold, or moisture conditions found anywhere on earth.

Find out what improvements Bob can make in your box. While you're about it, investigate Union-Camp's complete Packaging Evaluation Program available at no additional cost.

This service includes box design and development, specifications control, graphic design and merchandising counsel, box testing and in-plant surveys of your materials handling operation. An improvement in any one of these areas might produce greater efficiency and economy in your corrugated packaging operation.

A note on your letterhead will bring a prompt response. Why not write us today?



CORRUGATED BOXES
Union Bag-Camp Paper Corporation 233 Broadway N.Y. 7, N.Y.

Plants

*Dedham, Mass.: Allied Container Corp., Route 128, Allied Drive Trenton, New Jersey; 1400 E. State III. †Washington, Penna.; P. O. Box 285 Cleveland, Ohio; 10200 Miles Ave. †Sharonville, Ohio; P. O. Box 86 Chicago, III.; 4545 West Palmer †Benton Harbor, Mich.;

11th St. & Britain Ave. Lakeland, Florida; I

*Subsidiary Companies †River Raisin Division

†Monroe, Mich.; 1109 East Elm Ave. †Eaton Rapids, Mich.; P. O. Box III *Baltimore, Md.; Eastern Box Co.; Wagner's Point

Jamestown, N. C.; 3704 Point Pleasant Rd. Spartanburg, S. C.; P. O. Box 1965 Savannah, Georgia; P. O. Box 570 Lakeland, Florida; P. O. Box 454

It's the "little things" that pick the corporate pocket

It's the mark of a good executive to delegate authority. "Don't run a one-man show," the experts say. It is also the mark of a good executive to backtrack occasionally and check up on the results of delegated authority — particularly in those areas that may seem to require little executive judgment. These are the "little things" — that count.

Take, for example, the purchase of hand tools—wrenches, screwdrivers, impact sockets, pliers, etc. used on the production line or by the maintenance department. Just a routine buying job. You can pick 'em up anywhere—cheap.

But are they cheap? Poor-fitting tools cause accidents. Accidents cost money. Cheap tools damage screws, nuts, expensive parts. More cost. Cheap tools break easily, mean wasted time going back to the tool crib. More cost.

And with cheap tools, that's all you get — cheap tools. No advice, no benefit of an experienced sales engineer's tool and tool-use knowledge.

May we cite just a couple of examples of how top-quality SNAP-ON® tools sold by a SNAP-ON specialist saved these companies time and money.

Case A.

Impact sockets. SNAP-ON sales engineer inspected production line, suggested testing SNAP-ON power impact sockets along with brand then in use. Result: SNAP-ON sockets costing a few cents more handled ten times the work before showing wear. The company switched to SNAP-ON sockets, reports substantial savings.

Case B.

Tool kit for electronic assembly. SNAP-ON sales engineer inspected production line — recommended a special selection of tools to be purchased by employees. Result: There was such an improvement in work quality and output among SNAP-ON kit owners that the company arranged for every production employee to have a kit.

SNAP-ON Tools Corporation can cite hundreds of cases just like these, where qualified tool specialists recommended standard or special tools that resulted in faster production, greater safety, better work.

Perhaps hand tool purchasing is one of those "little things" that you or one of your associates should look into. If so, SNAP-ON would be happy to have a representative call and go over your hand tool program. Tools are a SNAP-ON representative's business — his only business. He can help you save money. Call your nearest SNAP-ON branch or write us, outlining your problem.



SNAP-ON TOOLS

8019-F 28th Avenue • Kenosha, Wisconsin For More Facts Write No. 202 on Information Card—Last Page

Products

Retaining Ring Good for High Thrust, High Impact



A heavy-duty, external-type retaining ring is intended for assemblies subjected to extreme loading conditions. Ring has high thrust and impact resistance and provides a shoulder sufficiently high to retain parts having large corner radii or chambers. It may be used to replace heavy-duty nuts, machined shoulders, and other bulkier fastening devices used to secure components on shafts, axles and similar structural members. Truarc Retaining Rings Div., Waldes Kohinoor, Inc., 47-16 Austel Pl., Long Island City.

Write No. 18 on Information Card-Last Page

Hole Grinder Ideal For Tough Materials



A versatile pneumatic hole grinder is ideal for grinding tough materials to close tolerances and smooth finish. Inserted in boring head and used on a vertical or horizontal mill, boring machine, (Please turn to page 106) Complete ductwork system of new Humble Oil Building is . . .





GUARDED BY GALVANIZED STEEL

When this handsome Humble Oil office building in Houston, Texas, is finished in 1962, it will be the tallest building west of the Mississippi River. All 44 floors will be served by galvanized steel ductwork. That's 700 tons of skin-tight zinc-coated steel—a combination of tough durability and excellent corrosion protection with the broadest economy east or west of the Mississippi River. Galvanized steel's economy starts with fabrication, continues with erection and installation and is perpetuated in what little maintenance is required after that.

WEIRKOTE® IN PARTICULAR!—That's the choice of Mr. Harold W. Looney, owner of Looney's of Texas, Inc., sheet metal contractor, for all 700 tons of ductwork in this new building. To the inherent strength of steel—to its economy, versatility and advantageously low expansion/contraction rate—Weirkote adds flawless fabrication and long-lasting corrosion protection. Chip-free, crack-free, peel-free Weirkote is manufactured by two National Steel divisions, Weirton Steel and Midwest Steel. Write Weirton Steel Company, Weirton, West Virginia, for further details.



MIDWEST STEEL
Portage, Indiana

WEIRTON STEEL
Weirton, West Virginia



divisions of

NATIONAL STEEL CORPORATION

For More Facts Write No. 203 on Information Card-Last Page



Why take less . . . when CORDLEY offers more:

More Cooler Experience. Water Coolers are Cordley's only business, not a side line.

More Assurance of Satisfaction. Cordley's full 5-year guaranty is by far the strongest in the industry.

More Help in choosing the right coolers for your use...from Cordley's line of 28 job-rated models.

The New CORDWALL LINE



No plumbing shows. Flush to the wall. No dirt can get behind. 3 wall models for instal-lation at any height. 5 floor models. See Yel-low Pages for nearest Cordley Distributor. Ask for Catalog 61.

CORDLEY & HAYES

Specialists in water cooling since 1889
443 Park Avenue South, New York 16, N.Y. For More Facts Write No. 204 on Information Card-Last Page

Products

(Continued from page 104)

lathe or jig borer, grinder will jig grind any size hole-before or after heat treat-as well as make cylindrical members. Grinders come in two sizes with motor speeds of 25,000 and 30,000 rpm. Each size is also available with shank diameters of 1/2, 5/8 or 3/4 in, to fit different size boring heads. Doeden Tool Corp., Hicksville. Ohio.

Write No. 19 on Information Card-Last Page

Special Paint Coats Galvanized Surfaces

Specially formulated "Galvinoleum White" can be applied directly to bare galvanized metal surface. It may be applied by brush or spray, and it dries to tough, durable semi-gloss white that lasts and lasts on gutters, downspouts, roofs, buildings, duct work, etc. It may even be applied to brand new unpainted galvanized metal without tedious etching or weathering of surface. Tinting with colors-in-oil may be done to achieve desired pastel shades. Rust-Oleum Corp., 2799 Oakton St., Evanston, Ill.

Write No. 20 on Information Card-Last Page

Low-Temp Solder Needs No Flux



A low-temperature solder which requires no flux is intended for use on aluminum and its alloys. zinc, tin, pewter, magnesium and other metals, as well as castings. Al-purpose solder has such tensile strength that in many instances

it can even replace welding or brazing, reducing costs and saving time. Solder has good machineability, can be polished and chromium plated and is an excellent conductor of heat and electricity. Metals for Industry, Inc., 299 Pavonia Ave., Jersey City,

Write No. 21 on Information Card-Last Page

First Aid Container Converts into Splints



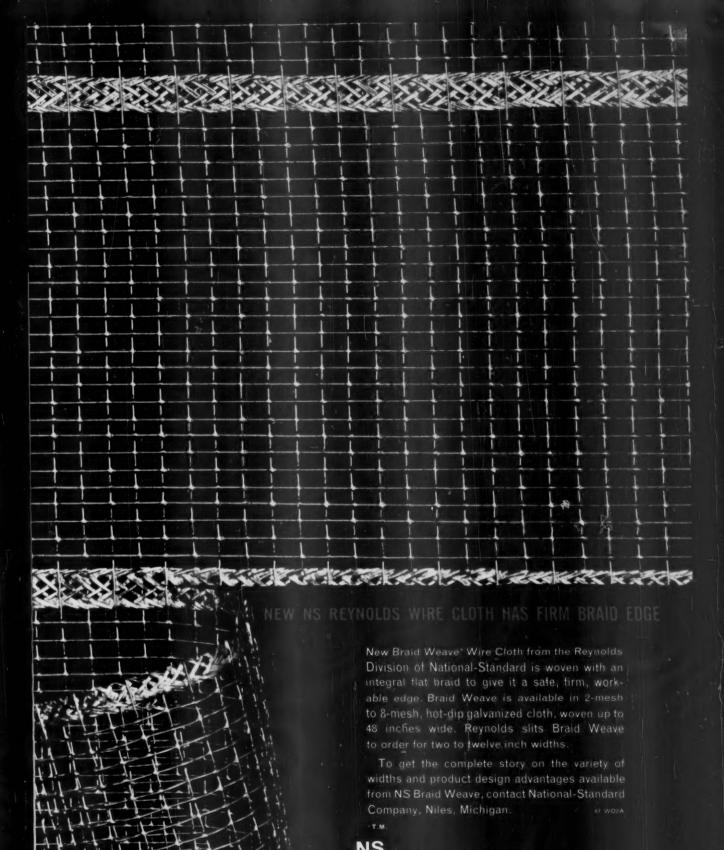
A recently developed first aid kit features an aluminum container that converts into a splint set within seconds, eliminating need to carry splints separately. In emergency, kit can be completely disassembled, first aid supplies deposited in the container bag, and a regular or traction splint constructed in matter of seconds. Extruded aluminum is extra strong, lightweight, rust-proof and easy to keep sanitary with soap and water. Rock Royal Corp., 120 S. La Salle St., Chicago 3, Ill.

Write No. 22 on Information Card-Last Page

Zinc-Coated Steel Stresses Paintability

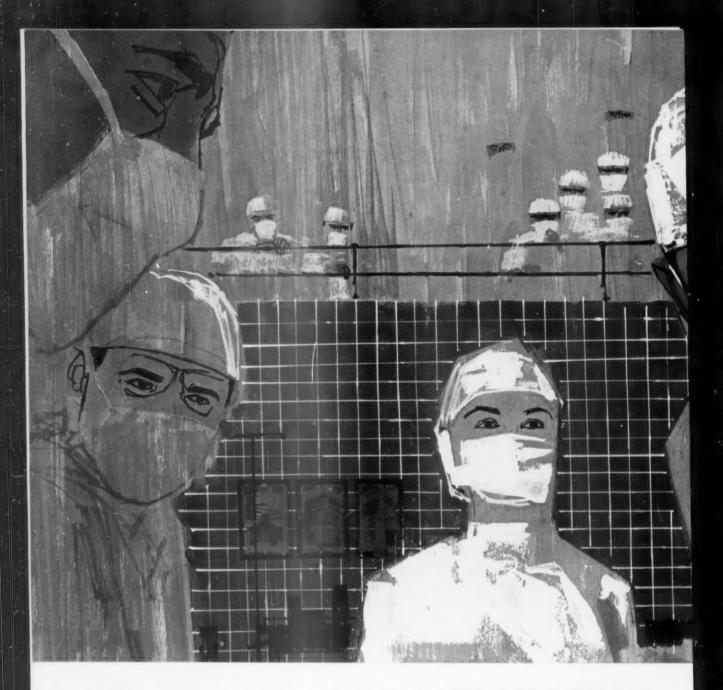
A spangle-free, hot-dipped zinccoated sheet is designed specifically to improve galvanized steel paintability while maintaining a heavy, 1.25 oz. class zinc-coat for maximum corrosion protection. Spot welding properties are also superior. Many applications are expected in automotive, appliance, architectural, air-conditioning, heating and related fields. For uses not requiring maximum paintability, special chemical coating can be eliminated. Armco Steel Corp., Middletown, Ohio.

Write No. 23 on Information Card-Last Page



NATIONAL-STANDARD COMPANY

Niles, Michigan



NS SPECIAL WIRE TRANSMITS

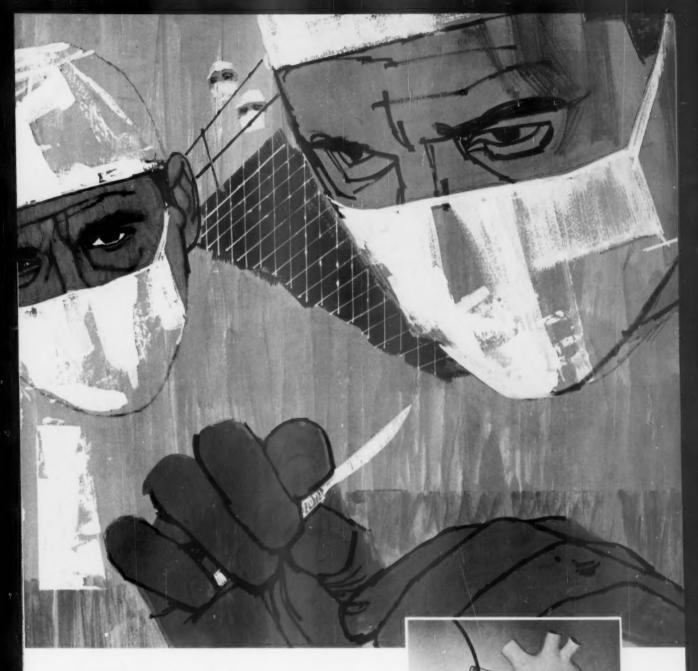
Doctors are saving more lives today in heart surgery cases through the transmission of carefully timed electrical pulses into the heart. Many patients suffering from lost heartbeat due to surgery or other causes have been restored to active life through such heart stimulation.

A LEADING MEDICAL INSTRUMENT COMPANY developed a pocket-size electronic package to generate the electrical impulse, which is transmitted to the heart through the jugular vein by a tiny stainless steel braided wire.

In their search for the right conductor to carry

the electric pulses to the heart, researchers came to National-Standard for help in developing a wire flexible enough to follow the intricate path of the circulatory system, while, at the same time, soft enough to avoid damaging the blood vessels or the heart itself. In addition, the wire had to be very thin, strong enough to withstand the constant flexing of the heart, and with just the proper electrical characteristics.

NATIONAL-STANDARD ENGINEERS developed a braid of 16 wires, each .0036" diameter, or about the thickness of human hair. Using type 302 stainless



SPARK OF LIFE

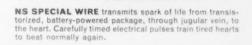
steel wire, NS engineers produced a braided wire with high tensile strength, good resistance to fracture, good conductivity and flexibility just right for the delicate application.

EXPERIENCED ENGINEERING HELP of this kind, for jobs requiring high-quality wire, to meet special or unique applications, is available to you from National-Standard. Write for additional information to National-Standard Company, Niles, Michigan.



Manufacturer of Specialty Wire and Metal Products

NATIONAL-STANDARD COMPANY
Niles, Michigan





SPRAYED "LIMPET" ASBESTOS® thermal insulation reduces installation labor costs by 35%! Eliminates joints, bands, fastening wires, cuting, mitering, fitting, and stuffing. Fits permanently on tanks, duct work, or irregular surfaces, regardless of temperature changes. Withstands Hot Face temperatures up to 1350 F. Also for fire protection, noise reduction, condensation control, corrosion prevention. Write No. 206 on Place Mark Card—Last Page.



Insulation material for caulking, packing and braiding! K&M Twisted Asbestos Rope Packing is ideal for caulking retorts, boilers, and ovens... or as base for lubricated packings. K&M Asbestos Yarn for braided packing. For more information, write No. 207 on Place Mark Card—Last Page.



For manufacturing folded asbestos gaskets of high quality! RAM Asbestos Gasket Cloth consists of quality asbestos yarn and fine brass wire strands twisted and woven, and covered with rubber friction compound. For more information, write No. 208 on Place Mark Card—Last Page



New K&M Aluminized Asbestos Cloth for safety garments reflects up to 90% radiant heat. KAMKLAD is a unique new combination of solid aluminum foil "welded" to a heavy duty asbestos cloth. High bond strength prevents deterioration under the most extreme conditions. Asbestos cloth base is extremely flexible yet retains its shape and construction when exposed to flame and water. Contains no glass yarn or filament. No vapor penetration. No evolving of noxious or flammable odors. KAMKLAD is ideal for entry and approach suits in firefighting, for safety garments for crews repairing open hearth furnaces and cleaning checkers in the steel industry, or for fire curtains, baffles, blankets and folding doors. For more information, write to: No. 209 on Place Mark Card—Last Page.

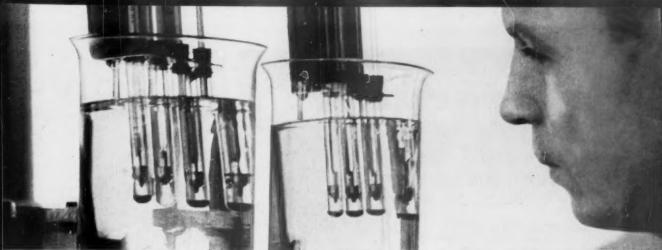
K&M BUYER'S GUIDE TO QUALITY ASBESTOS PRODUCTS FOR INDUSTRY

You can widen your profit margin by cutting maintenance costs and downtime with quality K&M asbestos products: Building Materials, Pipe, Textiles, and Insulations.

These tough mineral fibre products offer you durability, strength, and economy. For more information on these and other K&M products, write: Keasbey & Mattison Company, Ambler, Pa., Dept. I-361.

Our engineers will be glad to apply their skill and experience to help you reduce your costs in maintenance and production.





Dropping point test shows how greases react to heat. Beaker fluid has been heated to 390°F. All greases tested except Darina (second tube from left) have passed from solid to liquid state.

BULLETIN:

Shell reveals the remarkable new component in Darina Grease that helps it save up to 35% on grease and labor costs

Darina® Grease is made with Microgel*, the new thickening agent developed by Shell Research.

Darina lubricates effectively at temperatures 100° hotter than most conventional soap base greases can withstand.

Read how this new multi-purpose industrial grease can help solve your lubricating problems and even save you up to 35% on grease and labor costs.

There is no soap in Darina Grease.

No soap to melt away—wash away—or dissolve away.

Instead of soap, Darina uses Microgel – a grease component developed by Shell Research.

What Microgel does

Because of Microgel, Darina has no melting point. It won't run out of gears or bearings.

Compared with most conventional soap-base greases, Darina provides significantly greater protection under adverse service conditions.

Mix water into Darina and the '

grease does not soften. It shrugs off water-won't emulsify.

Resists heat

Darina will withstand operating temperatures 100° hotter than most conventional multi-purpose greases. It cuts leakage and reduces the need for special high-temperature greases.

Also, Darina resists slumping, thus forming a more effective seal against foreign matter.

Saves money

Shell Darina can reduce maintenance expenses while it protects your machin-

ery. Savings of up to 35% on grease and labor are quite possible.

In some cases lubrication intervals have been extended to double what they were before. Less grease is consumed and less time consumed applying it.

For details, see your Shell Representative. Or write: Shell Oil Company, 50 West 50th Street, New York 20. New York.

*Registered Trademark



A BULLETIN FROM SHELL
-where 1,997 scientists are helping to
provide better products for industry

For More Facts Write No. 210 on Information Card-Last Page



The Federal Telephone story, other case histories and technical data FREE on request.

"effected a tremendous saving" over previous materials and methods.



SEL-REX CORPORATION

NUTLEY 10, NEW JERSEY

World's largest selling precious metal plating processes

For More Facts Write No. 211 on Information Card-Last Page



For More Facts Write 212 on Information Card-Last Page

Products

Color Coding Enamels Are Fast Drying



Color coding enamels which come in handy, 16 oz. aerosol containers are easy to apply, fast drying, and permanent. They provide a simple and economical way to color code inventory stocks and work in process; mark tools; identify piping, valves, etc. Enamels are also ideal for spotlighting moving parts and other safety hazards and for marking fire and water valves and similar emergency equipment. They come in 18 popular colors, and adhere to wood, metal, plastic, corrugated board, or other surfaces. Aerosol container sprays dense, compact cone at touch of finger. Reynolds Ink, Inc., 2075 E. 65th St., Cleveland 3, Ohio.

Write No 24 on Information Card-Last Page

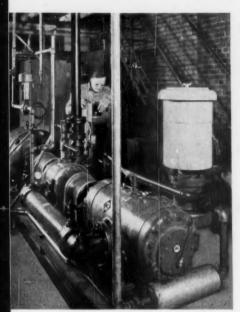
Fiber Glass Shapes Produced to Order

Low-cost fiber glass extruded shapes for structural, electrical and heat barrier applications are now available in a wide selection of resins, fibers and fillers. Economical extruded profiles with unidirectional or omnidirectional reinforcing fibers can be manufactured to customer's drawings and specifications. Continuous process extrudes intricate shapes in sizes ranging from 1/64 in. to approximately 6 in. diameter, with lengths limited only by shipping restrictions. New Plastic Corp., 1026 N. Sycamore Ave., Los Angeles, 38, Calif.

Write No 25 on Information Card-Last Page

ideas and news

New era of quiet in cooling: Smooth-running Allis-Chalmers pumps and motors "speak" with a whisper . . . circulate chilled water silently for air conditioning hospitals, schools, shopping centers or office buildings. Quiet operation is a result of the extra attention to detail given in manufacturing and testing. One example is the sound analysis laboratory where exact sources of unwanted vibration can be pinpointed, new design concepts developed.



More air . . . less wear with vibration-free compressor: RO-FLO compressors with sliding-vane rotary design eliminate efficiency loss inherent in reciprocating-type machines. Centrifugal force keeps vanes in close contact with cylinder walls, automatically compensating for wear. Rotary action reduces the number of wearing parts to three . . . blades, bearings and seals . . . maintenance is mini-mized. You get many other advantages with this rotary compressor from A-C. Compact design minimizes floor-space needs. Lack of vibration simplifies foundation needs and gives you pulsation-free air. Operation is so smooth you can stand a coin on edge atop a RO-FLO compressor operating at full speed. For constant, dependable operation, choose the RO-FLO compressor. Single-stage units are available for pressures to 50 pounds gauge. Two-stage units to



Silent pumps for air conditioning . . . motors that shrug off floods . . . compressors that defy wear. These examples demonstrate the extra value that is standard with A-C . . . the greater efficiency and added productivity which are yours when you buy A-C products, systems and services. Call your nearby Allis-Chalmers distributor for details on A-C "worth-more" features. Or write Allis-Chalmers, Milwaukee 1, Wisconsin.

Some franchises are available for A-C compressors, motors, control and pumps.

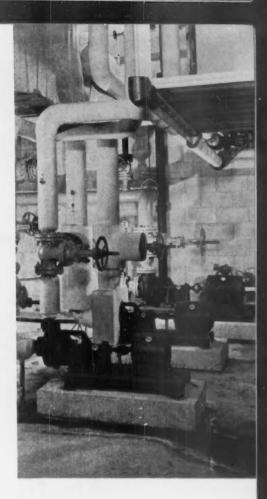
ALLIS-CHALMERS PRODUCTS FOR INDUSTRY: compressors, controls, coolers, crushers, earth-moving equipment, engines, generators, industrial systems, kilns, lift trucks, mills, motors, pumps, rectifiers, screens, switchgear; thermal, hydro and atomic electrical generating equipment; transformers, unit substations.

Ro-Flo, Poxeal, Silco-Flex and Super-Seal are Allis-Chalmers trademarks.

A-1498

ALLIS-CHALMERS

For More Facts Write No. 213 on Information Card-Last Page



No bake-out for wet motor: This SUPER-SEAL motor, installed in a low-lying work room of a Connecticut paper mill, has repeatedly been under 5 to 6 feet of water. When the flood water recedes, the motor goes back into service without costly, time-consuming "bake-out." POXEAL and SILCO-FLEX insulations, used in SUPER-SEAL motors, are impervious to moisture, dust, dirt, oils and most acids and alkalies.

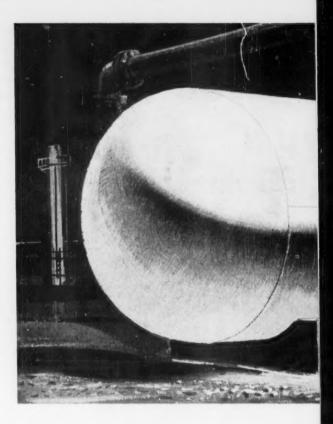






A.S.M.E. Approved

SSS-100 is approved for use in the construction of welded pressure vessels according to the requirements of Section VIII of the ASME Boiler & Pressure Vessel Code (Case No. 1298—Special Ruling).

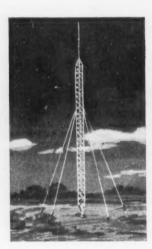


Sheffield's New SSS-100 Meets

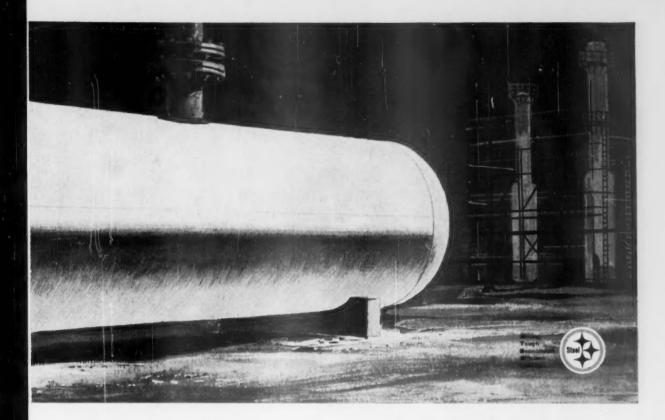
(Triple S-100)











Growing Need For Tougher Steel

Quenched and Tempered Alloy Constructional Steel With New Weight-Saving Strength — Greater Durability Under Punishing Loads — Excellent Weldability for Easier Fabrication.

Here it is! Sheffield's answer to the challenging need for steel with new qualities to meet the pressures of today's construction:

New S	She	ff	iel	d	SSS-100
Tensile Strength .					115,000 psi minimum
Yield Strength					100,000 psi minimum
Elongation (in 2 in	che	s)			18% minimum
Reduction in Area		*			50% minimum

SSS-100 may be furnished to requirements of ASTM A-300 at -50°F in firebox or higher quality levels.

SSS-100 is the steel to specify—to demand—for storage tanks and pressure vessels, bridges, earth movers, heavy construction machinery, transport equipment, tank

trucks, TV towers, fabricated structural shapes, missile ground-support equipment—any application that calls for a versatile combination of high strength, toughness and excellent weldability.

Sheffield SSS-100 is available in plates from $\frac{3}{16}$ to 2 inches thick, in blooms and billets for forging and subsequent heat treatment. Heat-treated bars can be furnished on inquiry. Also supplied heat treated to 321 minimum Brinell for use where resistance to impact abrasion is required.

For complete information and technical service, write Sheffield Division, Armco Steel Corporation, Attention Alloy Sales, P.O. Box 3129, Houston 1, Texas.

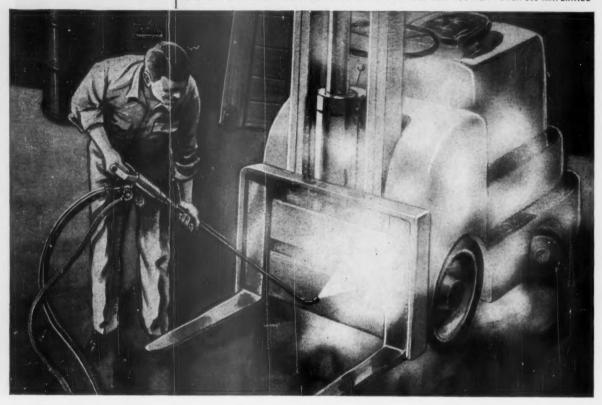


For More Facts Write No. 214 on Information Card-Last Page

For the best in plant maintenance cleaning

ask Oakite

OVER 50 YEARS CLEANING EXPERIENCE . OVER 250 FIELD SERVICE MEN . OVER 160 MATERIALS



PLANT maintenance costs less when it's PLANNED maintenance

No doubt about it—clean surroundings help maintain employee morale and efficiency, boost production, reduce accidents. But, of course, all of this costs money. That's why it will pay you to ask Oakite about a Planned Maintenance Program designed especially to keep housekeeping expenditures low. Your Oakite man will be happy to help you develop a cost-cutting program on such jobs as cleaning and sanitizing locker rooms, cleaning floors, walls, ceilings, machinery, lighting fixtures and hundreds of other items that require routine maintenance. Here are a few sample Oakite plant maintenance procedures that have saved money for hundreds of satisfied plant maintenance men.

Heavy equipments—such as Fork Lifting Trucks. Steam-detergent cleaning using the Oakite Hurriclean Gun.

Puinted Mathinery: Wiped clean with Oakite Renovator paint finish takes on a "new look".

Air Conditioning Units: Simple water treatment with specialized Oakite materials controls scale, slime. Keeps maintenance costs low. Gives most efficient cooling. Reduces out-of-service time.

Mechanized Cleaning: Wide assortment of dependable Oakite mechanized equipment helps slash cleaning time and costs. Saves water. Saves detergents. Ask your Oakite man about the Hurri-

clean Gun which hooks into steam lines. The Saniseptor which you couple to your hot water outlet. And the electrically powered Hot-Spray Unit.

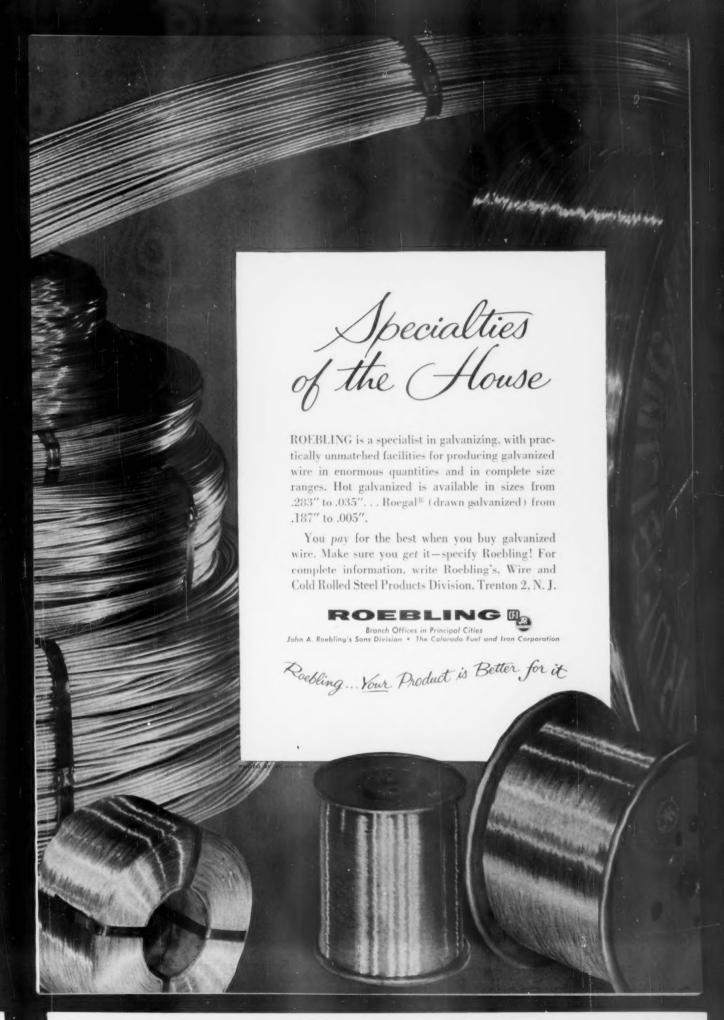
Ask the Oakite man to help you draw up a Planned Maintenance Program and watch your routine maintenance costs go down. Meanwhile, send for this informative bulletin which gives details on plantwide maintenance. Oakite Products, Inc., 26 Rector Street, New York 6, N. Y.



it PAYS to ask Oakite



For More Facts Write No. 245 on Information Card-Last Page



The Right Form Can Reduce Costs

FORMS CAN AND do play an important part in speeding operations, eliminating wasted time, and cutting overhead costs.

To insure that your forms are performing their intended function, you must study them objectively, in relation to the operations which they should control. According to a new booklet, entitled "Business Forms As A Management Tool," a business form should:

- Issue complete instructions to all concerned.
 - Provide all necessary records.
- Be designed in accordance with the best mechanics of preparation.
- Coordinate and control those activities which it sets into motion.
- Secure desired results at lowest final cost.

Each of your forms must be thoroughly in step with the present needs of your company. Too many companies are using business forms which they have long since outgrown. The results are increased clerical expenses, costly delays, incomplete records, and strained employee relations.

Design Is Important

A good business form must be designed to assure ease and accuracy of transcription from the information source, regardless of how it is prepared. A loss of one minute or more per form can pyramid into thousands of unproductive hours during a year.

Forms are rarely isolated items

—they are usually part of a system. Much of the original information on one form is frequently transcribed to others, with possible deletions and later entries. By combining two or more forms, time can be saved and greater accuracy can be assured.

Combine Operations

A purchase order, for example, also involves a requisition, a request for bids, a receiving report, and an accounts payable check. Very often, two or more of these can be combined in a single preparation, making substantial savings possible.

Each form must also be considered from the standpoint of its physical features. If used externally, it must represent the company as an efficient, quality-minded organization. Appropriate grades of paper, carbon, colors of ink, number of parts and methods of construction should be c refully analyzed.



The average company spends \$30 to \$40 in processing for every dollar it spends for forms.

It is essential for purchasing agents to remember that the cost of forms is a tiny fragment of the cost to process them. Some estimates place this ratio at \$30 to \$40 in processing cost for each dollar in forms cost.

Thus, the opportunity to capture major savings lies within the systems, methods, and procedures which are associated with the forms.

Regardless of how well designed, forms which are not subject to positive control waste money. Much of the necessary control may be achieved through design, construction, and functional elements.

Point Out Troublesome Areas

In order to maintain the required discipline throughout, there must be a fixed responsibility for: (A) Establishing the necessity of new forms and the obsolescence of old forms; (B) Determining re-order schedules and quantities as well as warehousing and distribution requirements; (C) Investigating the need of having a form produced outside or within the company; and (D) Maintaining necessary records of form numbers and titles.

The 20-page publication also features a series of 10 brief questions which point out possible troublesome areas in the use of business forms. Copies of this forms guide are available, without charge, from Alfred Allen Watts Co., Inc., Clifton, New Jersey.

Write No. 27 on Information Card-Last Page

Increase Accuracy

while simplifying figure work
with the *National** DELUXE
ADDING
MACHINE



with "Live" Keyboard

Cut hand motion and effort up to 50% with the exclusive National "Live" Keyboard!

Every amount key on the National De Luxe Adding Machine operates the motor. Result: You can forget the Motor Bar! Eliminates back-and-forth hand motion from keys to Motor Bar. Think of the time and effort this single National feature saves! All keys are instantly adjustable to each operator's preferred touch! It is no wonder operators are so enthusiastic about the National De Luxe Adding Machine. They do their work faster—with up to 50% less effort!

Only National has 14 time- and money-saving features.

"Live" Keyboard and Adjustable keytouch are just two of the 14 timeand effort-saving features which you get in the National De Luxe Adding Machine. You will also like its RUGGED CONSTRUCTION—NEW STYLING—NEW QUIETNESS—NEW BEAUTY. Your National representative will be glad to give you a demonstration and tell you about all 14 features. Call him today.

company poyton 9 Objectives

Your business, too, can benefit from the many time- and money-saving features of a National adding machine. Nationals pay for themselves quickly through savings, then continue to return a regular yearly profit. For more information, call nearest National branch office or dealer. See phone book yellow pages.

*TRADE MARK REG. U. S. PAT. OFF.

National"

ADDING MACHINES

CASH REGISTERS · ACCOUNTING MACHINES
ELECTRONIC DATA PROCESSING
NCR PAPER (NO CARBON REQUIRED)

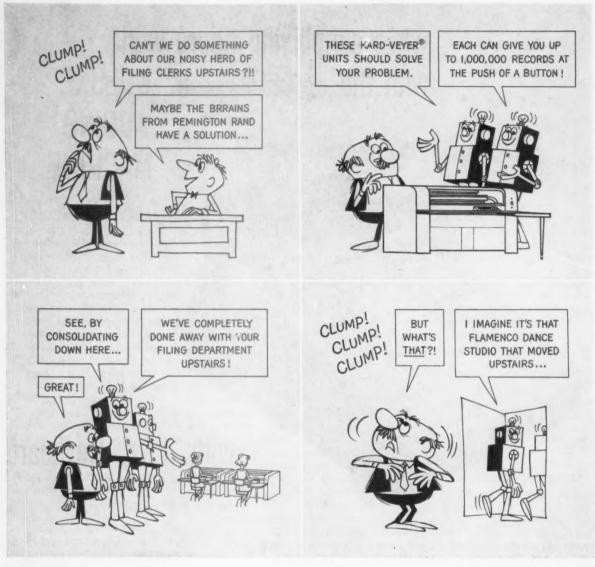
THE NATIONAL CASH REGISTER COMPANY, Dayton 9, Ohio 1039 OFFICES IN 121 COUNTRIES · 77 YEARS OF HELPING BUSINESS SAVE MONEY

For More Facts Write No. 217 on Information Card-Last Page

TO SOLVE A PROBLEM IN RECORD TIME

BRING ON THE BRRAINS FROM REMINGTON RAND





Down goes overhead...Up goes profit with Remington Rand Kard-Veyer® Mechanized Filing Equipment.

Never before has it been possible for one person to do so much work in so little time, with so little effort and — in so little space.

The Kard-Veyer® Unit keeps hundreds of thousands of record cards all in one cabinet. Touch a button and in 3 seconds you have any card you wish. Finding, filing and posting takes seconds—not hours.

If you deal with large numbers of people, accounts or things—there's a Remington Rand Kard-Veyer® Unit that'll save you more time, labor and floor space than you can imagine! See the many different models in our free, illustrated booklet—yours for the asking by using the coupon at right.

Remington Rand SYSTEMS

Division of Sperry Rand Corporation Room 721, 122 East 42nd St., New York 17, N.Y.

I'm all for saving costs, time and space. Please send me your

I'm all for saving costs, time and space. Please send me your free folder on your great Kard-Veyer® Mechanized Filing Equipment. Thanks!

NAME__

TITLE_

COMPANY___

ADDRESS_

CITY

ZONE ____STATE.

Office Equipment



Percolator coffee from a mobile unit is possible with the automatic coffee dispenser introduced by Gardner Manufacturing Co., Horicon, Wisc. The new machine uses a standard 55-cup percolator, automatic cup dispenser, and solenoid dispensing valve. It may be coin or manually operated and has a timer to turn on percolator at a pre-set time. The unit does not require water connections or drains.

Write No 28 on Information Card-Last Page



A system of automatic telephone dialing is being marketed by the Bell Telephone System. A choice or combination of two products is available from the American Telephone & Telegraph Co., 195 Broadway, New York, N. Y. One is a card dialer and the other is "Rapidial." Both operate on the principle of prerecorded numbers. The card dialer has an unlimited capacity because of its use of coded plastic cards, which have been previously punched and inserted when a specific number is to be dialed.

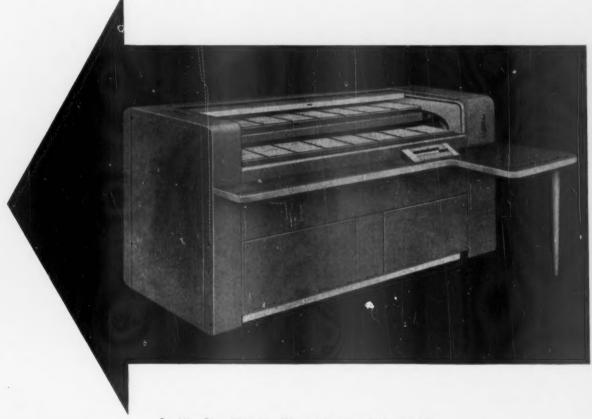
The companion unit uses numbers recorded on tape and selected by turning a knob to bring the proper name and number into view.

Write No 29 on Information Card-Last Page



Miniature all-transistorized tape recorder with a built-in amplifier is a product of Tape Recorders, P.O. Box 852, Sherman Oaks, Calif. The new unit is portable and uses standard tape and batteries with a playing time of 15 minutes on each side.

Write No 30 on Information Card-Last Page



For More Facts Write No. 218 on Information Card-Last Page

Office Equipment



Line of portfolio-style secretaries for the desk or pocket is being marketed by Novelart Manufacturing Corp., 38 East 1 St., New York 3, N. Y. Pocket with days-of-the-week indicators provides a handy tickler file. It is finished in leather-grained plastic and plain plastic with refills available at nominal cost.

Write No. 31 on Information Card-Last Page

A numbering device for a label printing machine will print consecutive numbers or duplicate from two to eight times before advancing automatically. It comes with wheels containing a maximum of seven digits in a variety of type styles and sizes. The label printer is a product of Weber Marking Systems, 215 E. Prospect Avenue, Mount Prospect, Ill.

Write No. 32 on Information Card-Last Page



An economy line of all wood, unit-structure desks has been announced by Eisen Bros., Inc., Hoboken, N. J. There are eight basic desks in the group, together with three "L-Units", one of which is for a typewriter stand. Write No. 33 on Information Card-Last Page



A small, low-cost letter opener has been designed for secretaries who open the executive mail. The new unit is made of solid steel and has cutting blades which are heat treated and precision ground. It is a product of Precision Automatic Letter Opener, P.O. Box 266, Jamaica 31, N. Y.

Write No. 34 on Information Card-Last Page

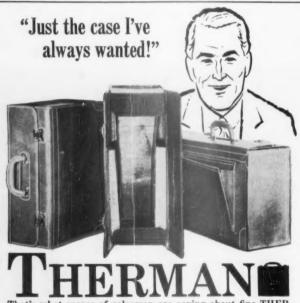


A new carpet produced from Allied Chemical Corporation's Caprolan nylon was introduced recently. It is particularly suited for areas which have exceptionally heavy traffic, such as elevators, corridors and hallways. The new carpeting weighs 47 ounces per square yard, has no shrinkage after a minimum of 100 cleanings, and is a product of Collins and Aikman Corp., 210 Madison Ave., New York, N. Y.

Write No. 35 on Information Card-Last Page

A full-color catalog of 1962 calendars has been published by Defiance Calendar Co., Inc., 1451 Broadway, New York 36, N. Y. The publication illustrates the various styles of calendars and bases and serves as a purchasing guide for calendars.

Write No. 36 on Information Card-Last Page



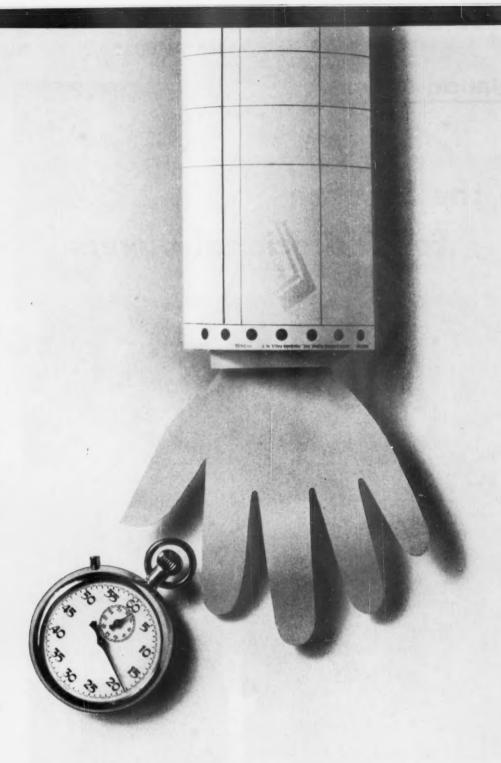
That's what scores of salesmen are saying about fine THER-MAN cases. Top-grain cowhide, these smart-looking, durable cases of all description and sizes are custom-made to your specifications...incorporate the most unique features to be found in this type of leather goods today.

SPECIAL ORDER WORK OF EVERY DESCRIPTION BRIEF BAGS • SAMPLE CASES • CATALOG CASES ZIPPER BRIEF CASES • ZIPPER ENVELOPES

· ACCOUNTANT'S CASES

Write for further details.

Therman Leather Goods Co., 25 WEST 30th ST. N.Y.
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5 WAYS THE MOORE MAN CAN GIVE YOU A HAND

1. SPEED—Procedures can be fast if a system is designed to simplify work and cut waste motion. The Moore man can help by designing a forms construction to produce all records from one writing. You can save steps, time, clerical effort and money...and make gains in other important ways, such as 2. Cost; 3. Control; 4. System; 5. Paperwork. Build control with Moore Business Forms.

An extra 'employee' working for you — Which forms should you have? The Moore man isn't limited—he can furnish any forms construction you need. He knows systems that have helped others in your field. He's backed by Moore's vast manufacturing facilities and research teams who are now designing the forms that reduce paperwork. And Moore plants are located near you for fast service.

MOORE BUSINESS FORMS

It's the Fortieth For Educational Buyers



The Warm-Up Party put everybody in good spirits.



A few of the nearly 400 members who registered for the National Association of Educational Buyers' 40th annual convention in St. Louis. A total of 246 institutions were represented—an N.A.E.B. record.



Adding charm to the social side of the convention were the numerous lovely ladies who attended.



A busy man was Host Committee Chairman James J. Ritterskamp, Jr., Illinois Institute of Technology.



The new N.A.E.B. president, Elmer Jagow, Business Manager of Knox College.



The new slate of N.A.E.B. officers (l. to r.): Hank Nelson; Treasurer G. Edward Nealand, MIT; Elmer Jagow; Retiring President Bruce J. Partridge, University of Delaware; William L. Christensen, University of Utah; George Schwab, LSU; and Executive Secretary Bert Ahrens.



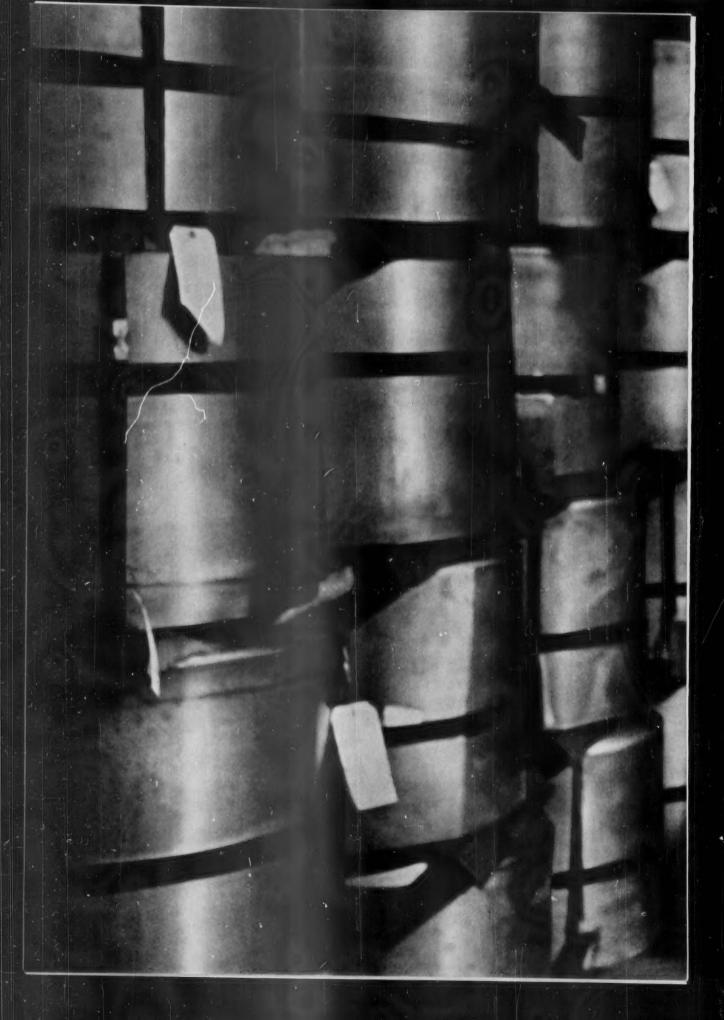
Hank Nelson, Columbia University, poses a question at one of the many popular workshop sessions. Topics ranged from how good are Japanese microscopes (mixed reactions) to how do you feed sterile mice antiseptically (nobody knew).



A large number of suppliers had their products on display in the exhibit hall. Here Russell Owen (I.) Wayne State University, gets the facts on tables and chairs from Shelby-Williams' salesman, Norm Rucles.



Checking the always popular Forms Board are Fred S. Vorsanger (I.), American Council on Education, and H. W. Jones, Johns Hopkins University.





SERVICE

get Youngstown steel quality plus cost-cutting service and delivery from your nearby Steel Service Center

Depend on Youngstown for quality steel. And get fast, sure delivery of Youngstown steel from your Steel Service Center. Steel in a day. Steel in hours. Steel in the variety and amount you need. Youngstown steel in plate, bar and sheet. Leaded steels, alloy steels, Yoloy steels, tin plate—hot rolled, cold rolled and galvanized sheet. All quality steels from Youngstown, a major supplier to America's independent Steel Service Centers.

Besides steel, you get service from your *inde*pendent Steel Service Center. Technical advice. Order help. Fabrication—cutting, slitting, leveling, heat treating, testing, grinding. And more.

Steel to help you make better products. Stocks to reduce your inventory. Service to help you cut costs. Count on it. Steel from Youngstown, Service from your *independent* Steel Service Center.



Youngstown - growing force in steel



For information about all Youngstown Steel Products, write: Dept. 25-H.,
The Youngstown Sheet and Tube Company, Youngstown, Ohio



Association News

Dallas Issues Check List For Plant Visits

Members of the Dallas Association of Purchasing Agents have been given a check list to use during plant visits. It is neither elaborate nor expensive.

The suggestions are reproduced on white bond paper about 5" x 7" and include six major points:

• Financial Structure—Credit rating, working capital, debts, profitable operations.

Organization — Who is responsible for what?; Sales—Who to contact to accomplish most good?; Methods used in quoting prices, discounts, deliveries; Order Processing & Production Control—Systems used, adequacy and efficiency.

Purchasing—Meet the top man. He might be able to clear a jam if one develops. Where does purchasing fit in the organization? What is included in purchasing's function?

Production—Control and scheduling in the shops; Quality control and quality consciousness; Expansion possibilities; Material Handling; Housekeeping; Maintenance facilities; Toolroom facilities.

• Inventories (raw materials)
— Adequacy, where obtained,
how obtained?

Inventories (finished goods)
 Adequacy, handling, packaging.

• Shipping Facilities — Own trucks? Dock space and facilities for trucks. What lines? Rail siding, what line?

• Labor - Management Relations—Work stoppage record. Unionized? What Union? Closed Shop?

Elects President

D. Ray Langford, Sun Oil Co., has been elected president of the Purchasing Agents Association of Dallas for 1960-61. He succeeds Harold Stockton, Dallas Power & Light Co., who was named national director.

Other officers elected at a recent monthly meeting include C.
M. Newsom, Southern Union Gas
Co., first vice president; and Robert D. Crane, Dresser Industries, second vice president. Fred D.
Bradley, Southern Union Gas
Co., was re-elected secretary-treasurer.

Markets, Men Discussed At Eastern New York

"Markets and Men" was the subject of a recent talk at the meeting of the Purchasing Agents Association of Eastern New York. Thomas B. MacAuley, director of sales training and development of Behr-Manning Co., delivered the message.

Mr. MacAuley was introduced to the membership by the Behr-Manning purchasing agent, Mark B: Patten.

Gerard F. Hart, Gifford-Wood Co., was moderator for a panel of members who presented commodity reports on wool, liquid fuels, steel, non-ferrous metals, coal, and paper.



ERIE BOLTS • STUDS • CAP SCREWS • NUTS In Alloys • Stainless • Carbon • Bronze

The quality of your equipment can be no better than the quality of its smallest component... one of many reasons why it pays to send your fastener specifications to ERIE specialists. Here your specifications are produced with watchmaker's precision by craftsmen whose sole business for almost half a century has been the production of fasteners to customer, government or national standards . . . fasteners for railroads, refineries, diesels, farm and earth moving equipment and other heavy machinery. Be sure . . . send your fastener specifications to ERIE specialists.

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ERIE BOLT & NUT CO.

Erie, Pennsylvania

Representatives In Principal Cities

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POSITIVE DUPLICATION—EVERY TIME!







Each one of these kernels of corn has positive duplication built into it, just as have these internal wheels, and all CINCINNATI®° GRINDING WHEELS. There are good reasons for this @ dependability . . . 36 good reasons.

FAMOUS, UNIQUE PROCESS

Three dozen unvarying quality controls govern every step of the famous Cincinnati manufacturing process, unique in the industry.

For example, the atmosphere of the mold room is climate controlled with conditions of temperature and humidity that remain the same from hour to hour, from day to day, from year to year!

RESULT: UNSURPASSED UNIFORMITY

This extraordinary attention to manufacturing detail results in wheels of unsurpassed uniformity. You can they give you the same good job time after time. You use fewer wheels because @ wheels last longer.

CALL CINCINNATI TODAY

Factory trained by the Cincinnati Milling Machine Company, our grinding specialists are available to you for consultation on all your grinding problems. Call your CINCINNATI GRINDING WHEELS Distributor, or contact us direct, Cincinnati Milling Products Division, Cincinnati 9, Ohio.



reorder CINCINNATI WHEELS with confidence, because



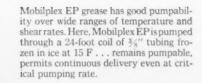
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A PRODUCTION-PROVED PRODUCT OF THE CINCINNATI MILLING MACHINE CO.

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JUNE 19, 1961

129



Mobilplex EP resists both water wash and runout caused by heat. In this demonstration, an immersion heater is used to boil water in a conventional mesh vegetable strainer coated with Mobilplex EP. Grease maintains a water-tight film even under these adverse conditions.

Mobilplex EP gives extra protection against wear under heavy and shock loads. Here, two split "bearings" consisting of V-shaped bushings are clamped under equal pressure on a polished steel shaft. The front bearing is lubricated with Mobilplex EP; the rear bearing with a high quality non-EP grease. When bearings are reciprocated in opposite directions, the shaft turns with the rear bearing, indicating frictional resistance is greatest at this point.

EVALUATION SUMMARY

MOBILPLEX EP () and 5 Leading Competitive EP Greases (A,B,C,D,E) RATING PROPERTY EVALUATED Excellent Good Fair Poor Heat Resistance C,D,E A Service Performance A,C,E B,D M Extreme Pressure B.D.E MA,C Anti-Wear MA B.C D,E MB,C, D,E Rust Protection A Water Resistance A,D,E MB.C Handling Properties

This chart summarizes results of an extensive evaluation program at Mobil Research. For complete details ask your Mobil representative,

MA.C

M

B,D,E A,B, D,E

Controlled Bleeding

Non-staining

The Multi-Service* Grease with unique Calcium EP Complex. Never before in a single lubricant such a wide range of use . . . such a margin of superiority . . . such a potential for maintenance savings!

Versatility unparalleled...

Mobilplex

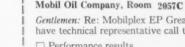
A product of Mobil research . . . Mobilplex EP . . . a Multi-Service extreme-pressure grease far superior in quality and range of applications to any multi-purpose grease available.

Mobilplex EP, with a unique Calcium EP Complex, provides maximum protection against wear, rust, washout and heat. Because of its greater versatility, Mobilplex EP goes further than competitive extreme-pressure greases in simplifying your lubricant application, storage and purchasing practices. This new-type lubricant has given industrial machines greater protection while replacing as many as seven other greases. Mobilplex EP has all of the advantages usually associated with EP greases-as well as excellent storage, structural and oxidation stability.

Examination of the Socony Mobil evaluation summary at left shows that in comparison with five competitive extreme-pressure lubricants Mobilplex EP is the only grease excellent or good in every grease quality tested. No wonder aluminum and steel mills, metalworking shops, cement plants, and the chemical and rubber industries are reporting dramatic success with Mobilplex EP.

For full details contact your local Mobil representative, or write Mobil Oil Company, 150 East 42nd Street, New York 17, New York.

*Multi-Service means excellent for all types of anti-friction and plain bearings under various operating conditions up to temperatures in the range of 300 F, and for all types of dispensing equipment.



Gentlemen: Re: Mobilplex EP Grease Ad. Please have technical representative call to discuss:

For a descriptive brochure and specific recommendations, cut out and mail on your letterhead.

- Performance results.
- A specific grease lubrication problem involving _caustic_ _acid__ _heat.
- Reducing the number of greases in my plant.





Proved Petroleum Products... Available with a Mobil Program of Correct Lubrication



STAINLESS

pipe & fittings in stock...

Stainless steel piping for process installations, like the one pictured in Mogen David Wine Company's modern Chicago plant, can be readily supplied from our warehouse stock.

We maintain a large inventory of light-wall, standard, and extraheavy stainless pipe in a variety of sizes and analyses—plus threaded and welding fittings, and valves.

Rely on C. A. Roberts Co. for prompt service and expert technical assistance on your Stainless Piping

C.A. ROBERTS CO.

Steel & Aluminum Tube Specialists.
Dept. N-6 2401 25th Avenue • Franklin Park, III.

6 warehouses serving the middlewest CHICAGO • DETROIT • INDIANAPOLIS ST. LOUIS • TULSA • N. KANSAS CITY

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Association News

Plan Programs for Management Institute



The advisory committee for the Management Institute of the University of Wisconsin, has defined the goals for professionalism in purchasing. Members of the committee are (l. to r.): Andrew Kolar, Link-Belt Co.; Dr. 1. V. Fine, University of Wisconsin; Fred Brewer, A. O. Smith Corp.; J. V. Chiles, Hiram Walker & Sons, Inc.; William P. Stilwell, Management Institute; Lyall Stilp, Kimberly-Clark Corp.; A. E. Belter, General Electric Co.; Harold Jungbluth, R. T. & E. Çorp.; and Hal North, Victor Mfg. & Gasket Co.

New York Group Elects Officers



A few of the new officers of the New York Association pose for the camera. From I. to r.: Thomas Parise, director; Edwin Close, director; Peter P. Heaney, second vice president; Donald T. Keliher, president; Lewis Norris, treasurer; and Eugene S. Page, director.

Election of officers was the first order of business at a recent meeting of the New York Puchasing Agents Association. David S. Gibson, Worthington Corp., chairman of the nominating committee, presented a slate which was unanimously accepted by the membership.

Donald T. Keliher, U. S. Metals Refining Co., is the new president. Others elected with him were: Charles B. Adams, General Electric Co., first vice president; Peter P. Heaney, Dejur-Amsco Corp., second vice president; and Lewis A. Norris, Dreyfus & Co., treasurer.

New members of the Board of Directors are: Thomas Parise, Allen Industries, Inc.; Edwin M. Close, Hanson-Van Winkle-Munning Co.; and Eugene S. Page, Olin Mathieson Chemical Corp.



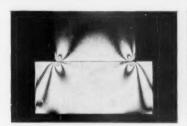
CROPS OR POLES...BEARING MUSCLE HELPS PLANT 'EM BOTH!

From plowing and seeding to digging post holes, the farmer depends on his tractor and implements for plenty of muscle, when and where needed. It's no wonder he looks especially for stamina and proven dependability in the new equipment he buys. For this reason, farm equipment manufacturers select vital components with great care. Leading tractor and implement makers, for instance, use Bower Roller Bearings

as original equipment. Bower's original contributions to advanced bearing design, plus painstaking quality control, reduce bearing maintenance and failure to a practical minimum . . . help manufacturers keep their equipment rolling. For your bearing requirements, Bower provides a complete line of tapered, straight and journal roller bearings. Bower Roller Bearing Division, Detroit 14, Michigan.

BOWER

tapered cylindrical journal DIVISION OF FEDERAL-MOGUL-BOWER BEARINGS, INC.





Roller bearing life and capacity are linked to stress distribution. Photoelastic studies indicate both magnitude and distribution of stress. Identical loads show dangerous edge-load stress build-up in conventional roller (left) . . . Bower "Profiled" roller (right) eliminates points of excessive stress concentration. Result—improved load-carrying capacity, increased life.



NEW

from

NORTON N



ALUMBUA

ABO RRSI



The top-ranking wheel team for centerless grinding

The 23 ALUNDUM* grinding wheel and R51 feed wheel... the best performing, longest lasting combination on any centerless grinder.

Although centerless grinding is a two-wheel operation, it doesn't need to be a two-brand buying chore.

HERE'S WHY.

Norton now offers this outstanding wheel team for production-precision and economy in centerless grinding . . .

- The 23 ALUNDUM grinding wheel for premium performance at non-premium price.
- The R51 bond feed wheel for positive feed and accurate work support plus long service life

23 ALUNDUM Abrasive is no ordinary aluminum oxide. In price it is non-premium . . . but with premium toughness and sharpness . . . and fast, free cutting action that means premium performance.

23 ALUNDUM wheels have other important advantages: friability, which minimizes dressing . . . uniform duplication, for uniform performance . . . and versatility, for grinding all steels, Meehanite, aluminum and many other metals.

Teammate R51 is not just another feed wheel. This special Norton abrasive-and-bond

combination has thoroughly proved the importance of the feed wheel to accurate, low-cost centerless grinding.

Reports from plants all over the country credit R51 wheels with exceptional performance, minimum dressing and no slipping or chatter. And Norton quality control keeps them uniform from wheel to wheel and lot to lot.

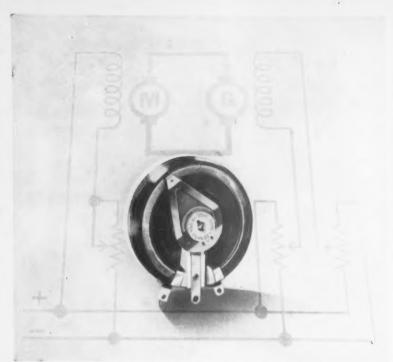
On the new Norton No. 2 Straddle-Bearing Centerless Grinder — or on any other machine of this type —23 ALUNDUM grinding wheels and R51 feed wheels make your best matched team for low cost, volume production centerless grinding. For expert aid in wheel selection, and a test run in your plant, see your Norton Man, a trained Abrasive Specialist, or your Norton Distributor, Norton Company, General Offices, Worcester 6, Massachusetts. Plants and distributors around the world.

*Trade Mark Reg. U.S. Pat. Off. and Foreign Countries



W-2011

Making better products...to make your products better NORTON PRODUCTS: Abrasives - Grinding Wheels - Machine Tools - Refractaries - Non-Slip Floors — BENR-MANNING DIVISION: Coated Abrasives - Starpening Stores - Pressers-Sensitive Tapes



Background is schematic of world-famous Ward Leonard system of control.

In modern rheostat circuits, it's

SERVICE CONTINUITY THAT COUNTS

Production stopped. Workers idle. But wages, maintenance costs, and fixed charges go merrily on accumulating.

That's the black picture when an industrial control component—specifically a rheostat—fails. That's why reliability is more important than initial cost. In many cases, these irrecoverable charges and costs can quickly far exceed the replacement cost of the faulty components.

And that's why far-sighted designers are more and more specifying Ward Leonard VITROHM ring rheostats for control circuits where performance is a must...in motor and generator field control circuits...for electronic tube filament circuits...wherever substantial amounts of power must be handled with utmost rheostat reliability.

Ward Leonard ring rheostats, in sizes of 25,50,100,150 and 300 watts, feature W/L's exclusive "twin contact shoe" design. Two sintered, self-lubricating contact shoes minimize wear and assure uniform contact pressure, smooth oper-

ation, and maximum reliability.

Special alloy resistance wire—made to W/L's closely monitored specifications to assure highest stability and lowest practical temperature coefficient—is bonded permanently to ceramic core by Ward Leonard's own VITROHM vitreous enamel.

These are just a few of the reasons why VITROHM ring rheostats give you outstanding reliability in industrial control circuits. There are many more quality-engineered features than we can describe here-for instance, highest grade ceramic base and core, durably bonded tinned alloy terminals, and balanced beryllium copper contact arm. You'll find them all in Bulletin 60RR (and for powers above 300 watts, check W/L plate rheostats in Bulletin 60A). For your copy, and for a list of stocking distributors, write: Ward Leonard Electric Co., 50 South St., Mount Vernon, N.Y. (In Canada: Ward Leonard of Canada, Ltd., Toronto.)

WALD HONATO

WARD LEONARD ELECTRIC CO. MOUNT VERNON

RESISTORS • RHEOSTATS • RELAYS • CONTROLS
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Association News

Florida Chapter Elects Officers

The Brevard Chapter of the Purchasing Agents Association of Florida elected a new slate of officers at a recent regular monthly meeting.

The group has 89 members—including five who were added to the roster in the past month. The outlook for this small but growing association of purchasing agents is excellent. Brevard County in Florida is one of the fastest growing counties in the United States; its population rose from 23,000 in 1950 to 110,000 in 1960.

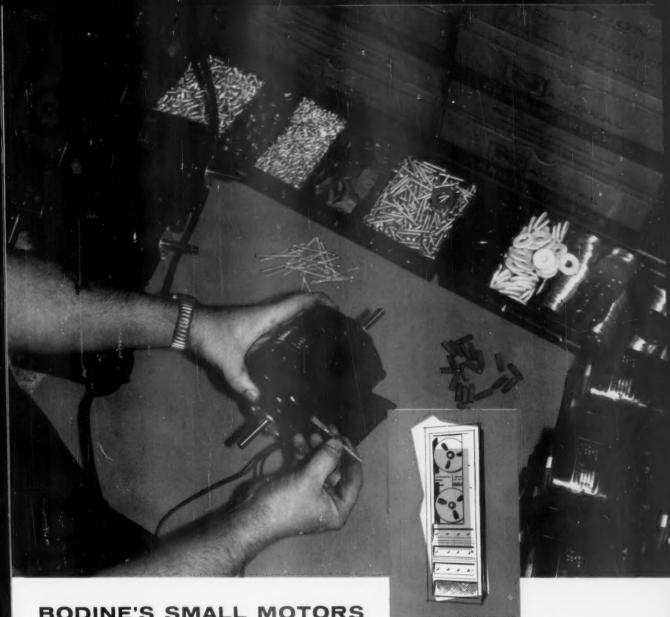
The county's growth is easily explained by its biggest industry: space travel. Cape Canaveral is located in Brevard County and 15 miles to the south is Patrick Air Force Base, headquarters of the Air Force Missile Test Center.

New officers of the group are: president — Robert A. Moore, Martin Co.; first vice president—Gus Gossard, Astronautics, Inc.; second vice president—Arthur G. Smith, Soroban Engineering; secretary—Breese Provost, Office Equipment Co.; and treasurer—Bob Thompson, Martin Co.

Directors of the Association include J. D. Booth, J. G. Christopher Co.; G. Q. Butler, Martin Co.; Charles Dare, Guerin-Dare, Inc.; and Don Piper, Patrick Air Force Base. Col. Paul R. Cornwall, retiring president, was elected national director.



. . . we're starting out in a small way!!



BODINE'S SMALL MOTORS

OFFER DEPENDABLE SERVICE WITH



Here, at the Bodine Electric Company Plant, fractional horsepower motors are manufactured for a wide variety of products. Considering the small sizes of the motors used, these products do a tremendous job in making many everyday tasks easier and more enjoyable for the user.

"National" Fractional Horsepower Brushes-tiny but vital components in these motors-offer proved dependability so necessary in this small equipment.

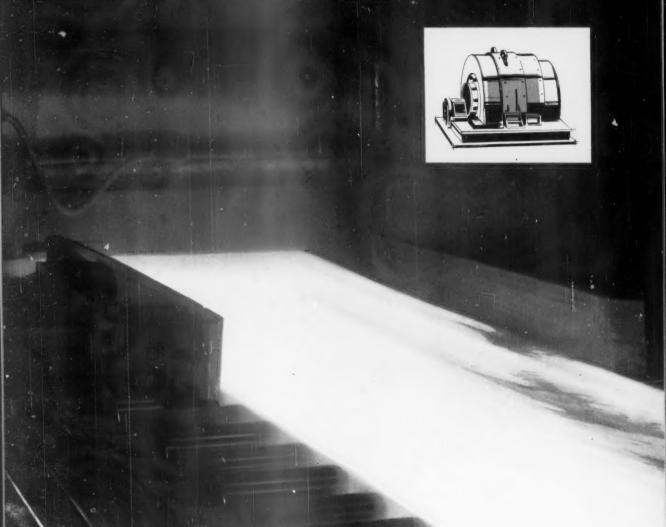
National Carbon Company maintains a complete testing laboratory specifically designed for the investigation of fractional horsepower brush problems. For information, contact your "National" Brush Man or write National Carbon Company, Division of Union Carbide Corporation, 270 Park Ave., N. Y. 17, N. Y. In Canada: Union Carbide Canada Limited, Toronto.

"National" and "Union Carbide" are registered trade-marks for products of

NATIONAL CARBON COMPANY

Contact your "National" Brush Man

STEEL IS ROLLED AT THE HOMESTEAD WORKS WITH AN ASSIST FROM PATIONAL BRUSHES



Rolling mills at the Homestead Works of United States Steel Corporation exert tremendous pressures to squeeze steel into desired thicknesses. The mills are designed to handle terrific mechanical strains ... the motor-generator sets to take the swinging peak loads imposed.

"National" Brushes—wherever they are used on the m. g. sets that power the mammoth mills—provide good commutation and life despite the difficult loading

conditions. They contribute to dependable service with minimum commutator maintenance.

To help improve electrical operations, we offer a positive carbon brush service program. Just call your "National" Brush Man or write National Carbon Company, Division of Union Carbide Corporation, 270 Park Avenue, New York 17, N.Y. In Canada: Union Carbide Canada Limited, Toronto.

"National" and "Union Carbide" are registered trade-marks for products of

NATIONAL CARBON COMPANY

Contact your
"National" Brush Man



Quick delivery to meet your needs for Standard and Special types of tube

When you specify Revere for electric welded steel tubing, you are tapping more than 40 years' experience meeting requirements for every type of application. What's more you get these advantages:

Wide selection of shapes—squares, rounds, rectangles, etc. in either mechanical or pressure tubing.

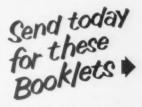
Speedy delivery—continuing set-ups of popular sizes from ¼" to 5" OD and proportionate sizes in squares, rectangles, special shapes. (Ask to be put on our Advance Production Schedule mailing list—no obligation.)

Choice of steels and wall thicknesses—from C-1008 to C-1030 steels and walls from .028" to .250" depending on size and grade of tube. Coated and low alloy high strength steels also available.

Complete facilities for normalizing, annealing, sink drawing, mandrel drawing and testing are available. Flattening, flanging, crushing and reverse flattening tests are part of

our normal manufacturing procedure and assure you tubes that meet your fabrication requirements.

There's a Revere Sales Office or Distributor near you. Call him with your next specific requirement.



FREE — informative booklets: 1—Revere Welded Steel Tubing Catalog, 2—Commercial Tolerances for Welded Steel Tubing, 3—Welded Steel Pressure Tubing.



REVERE COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

Rome Manufacturing Company Division Box 111, Rome, N. Y.

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"We order all our recording charts from this one book!"



You save money, cut down on paper work, and keep engineering people happy when you buy recording charts from this new GC Stock List. More than 15,000 circular, strip and rectangular charts are listed here, cross-indexed by instrument manufacturer and type—most are available for immediate shipment.

You'll save money—GC Recording Charts are more economical and you can order in large quantities, for periodic shipments. You'll reduce paper work—you'll write fewer orders—and deal with only one chart representative. Your engineering people will be happy—GC Recording Charts will give them the performance they demand.

This 92-page stock list is factual and it's free. Let us send you a copy. Also, send us a chart number or two, we'll send you samples. Have your engineers put these GC Recording Charts to every test in the book—we'll rest our case on the results.



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Buffalo 10, New York

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Association News

New Officers for Southwestern Michigan



Officers were elected recently for the National Association of Purchasing Agents-Southwestern Michigan (formerly Kalamazoo Valley). Shown here are (l. to r.): Paul Ernst, Burroughs Mfg. Co., president; Earl Nelson, Checker Cab, executive vice president; Emil Sokolowski, Western Michigan University vice president; Paul F. Barthold, Beach Products Inc., national director; and Albert A. Parker, Ihling Bros. Everard Co. secretary.

Management Expert Speaks to Florida P.A.'s

An executive from General Electric's Pinellas Peninsula plant was the principal speaker at a recent meeting of the West Coast chapter of the Purchasing Agents Association of Florida. He was C. T. Kimball, a member of G. E.'s administration staff.

Kimball spoke on the subject "Management's Responsibility To Purchasing." He stressed the point that management has the responsibility to make it clear "what areas purchasing will be responsible for and making doubly sure that they are given the full authority."

Another area of management responsibility is to see that properly qualified purchasing personnel are made available. This makes it mandatory that management appreciate the broad knowledge and many talents required of purchasing people.

"Management must also recognize, and cause others to recognize, the importance of having all contact with vendors carried on through purchasing or under purchasing's direction," he said. "This cannot be stated in directives and immediately forgotten; it must be constantly practiced and enforced."

In concluding his remarks, Kimball told the Florida P.A.'s "For



C. T. Kimball told Florida P.A.'s that management must recognize the knowledge and talents necessary for purchasing.

management to properly accomplish their responsibilities it is necessary that you the recipient, measure management and communicate the results."



Single Line Application Engineering—Graduate engineers working with a single manufacturer's product line provide you with professional-quality assistance in making optimum equipment selection on all phases of hydraulic applications.



Regional Stock and Repair Service—Regional service centers provide prompt repair and test service, exchange units, shelf stocks of repair kits, service parts and replacement units. Only from Vickers do you get world-wide interchangeability of parts, too!



Unmatched Field Service—Skilled Vickers service men are always nearby when you need help—at start-up—for in-plant service—for expert trouble-shooting. Any Vickers-equipped machine located in the free world is assured of this service . . . for life.



Specialized Technical Training—Vickers operates hydraulic schools and sponsors annual technical conferences for machinery builders and users—all at no charge. These activities are supported by a comprehensive library of helpful technical literature.

WHEN PURCHASING HYDRAULICS ...

analyze these added values too!

What do you look for when you purchase hydraulic components and systems—reliable performance, dependable delivery, fine workmanship, competitive pricing? These you expect, but, to get the most from the machinery you build or use, you probably want to dig deeper than this.

Perhaps you already know Vickers designs and builds the most complete line of hydraulic components and systems available anywhere. Its reputation for pacesetting developments is soundly based on the efforts of more than 800 engineers and technicians working in a facility unequalled in the industry.

But—are you familiar with all of the added benefits benefits "built in" to every Vickers product, and not available from any other source? For the complete story, write to address below or see your Vickers application engineer.



VICKERS INCORPORATED

DIVISION OF SPERRY RAND CORPORATION

Machinery Hydraulics Division

ADMINISTRATIVE and ENGINEERING CENTER
Department 1566 • Detroit 32, Michigan

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9674



CF.I Shaped Coils and Stem-Paks° are Packaged for Your Production

SHAPED COILS

Here's a quote from one satisfied user, the president of a wire fabricating plant:

"A CF&I salesman examined our operation and suggested that we use CF&I Shaped Coils as opposed to the small coils we had previously used. We now stop our machine only once to start a new coil, instead of 10 times a day. We save nearly 2 hours, and have increased our production by about 20%."

CF&I-Wickwire Shaped Coils contain between 1500 and 2500 lbs. of top quality wire in one continuous length . . . are bundled with four steel straps and, when necessary, wooden supports to insure that the coil is not distorted .

OPERATING ADVANTAGES: Increased production, reduced material-handling costs, less wire scrap and less storage space needed.

DISPOSABLE STEM-PAKS

The experience of a typical user:

"Up to 75% of our production downtime was caused by using too many small coils. Stem-Paks hold 500 to 1000 pounds of continuous wire. These larger packages keep each machine running as much as 1½ hours longer per day. Stem-Paks allow for free unwinding, without snarling. CF&I Stem-Paks have increased our production 50%."

Stem-Paks hold 500-1000 lbs. of wire in one continuous



length...consist of a center core attached to a wooden base mounted on 4'' runners.

AVAILABLE IN: Sizes for 14", 17" and 21" center core (inside diameter).

OPERATING ADVANTAGES: Ease of handling, reduced scrap losses, increased production and less storage space.

Only CF&I offers a total of ten different wire packages. You've just read how two of these packages have increased the production efficiency of leading manufacturers. One or more CF&I-Wickwire Wire packages can do the same for you. Our engineering staff will be happy to study your operation and recommend the type that best meets your requirements. For complete details, write your local CF&I sales office.



THE COLORADO FUEL AND IRON CORPORATION

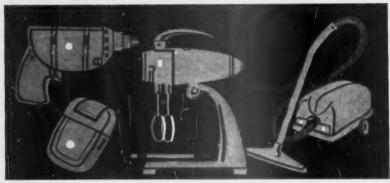
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Sales Offices in Key Cities 6114

Quality BRUSHES



for any FRACTIONAL H.P. MOTOR



Produced BY THE MILLION



for leading Motor Manufacturers for OVER 50 YEARS



BRUSHES FOR ALL ROTATING ELECTRICAL EQUIPMENT • ELECTRICAL CONTACTS • GRAPHITE BEARINGS & SEAL RINGS • SLIDE & SNAP SWITCHES • ELECTROCHEMICAL ANODES • ROCKET NOZZLES WELDING & BRAZING TIPS • CERAMIC MAGNETS • FIXED & VARIABLE RESISTORS • FERRITES AND MANY MORE

For More Facts Write No. 235 on Information Card-Last Page

Association News

City P.A. to Head Chicago Association

Richard B. Berry, deputy purchasing agent for the City of Chicago, has been elected president of the Purchasing Agents Association of Chicago. He has been with the city's department of purchases since 1948 when centralized purchasing became a part of the municipal operation.



Richard Berry: "We sometimes mistake the static state of possessing a membership card as a mark of professionalism."

"Each member," said Berry, "must realize that only constant and active association and fellowship will preserve our gains and further our principles, objectives, and professional development."

Elected to the office of first vice president of the Association was Roy F. Sielisch, Radio Industries, Inc., Glenn Reiner, Abbott Laboratories, was elected second vice president.

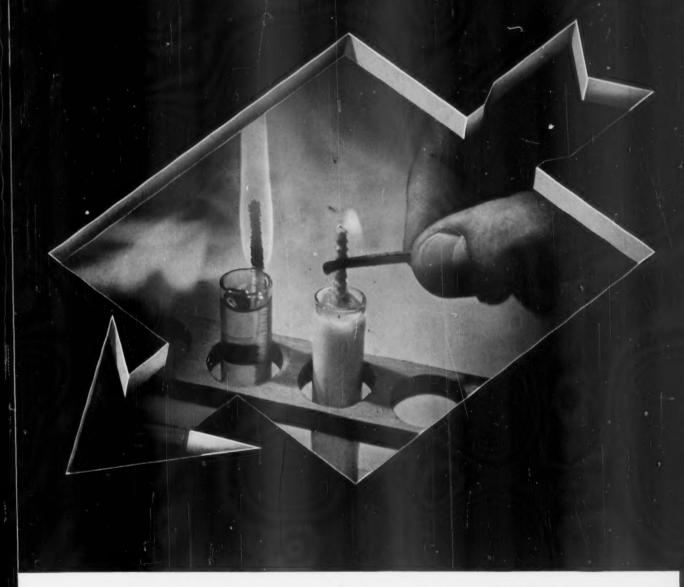
Three newly-elected members of the Board of Governors are: Andrew Kolar, Link-Belt Co.; Sam Mesha, Arnold Schwinn & Co.; and David L. Koontz of American Steel Foundries.

Milwaukee Sponsors Three-Day Seminar

"All too frequently, manufacturing is overly concerned with labor costs and not sufficiently concerned with what may be the largest single cost factor—materi-

(Please turn to page 148)

Quality... the best economy of all



Another product of Sunoco research . . . a fire-resistant hydraulic fluid

The flame test, above, dramatizes the effectiveness of Sun's new fire-resistant hydraulic fluid. The wick in the conventional fluid burns readily; the wick in Sun's new fluid just can't be lighted.

SUNSAFE, a water-in-oil emulsion, eliminates fire hazards . . . provides increased safety to personnel and equipment. At the same time, operators get the essential performance characteristics of a top-grade hydraulic oil—low rates of wear, long service life, and

protection against rust and corrosion.

This combination of *quality* in engineering know-how, and *quality* in product, proves once again that *quality* in any sense is the best economy of all.

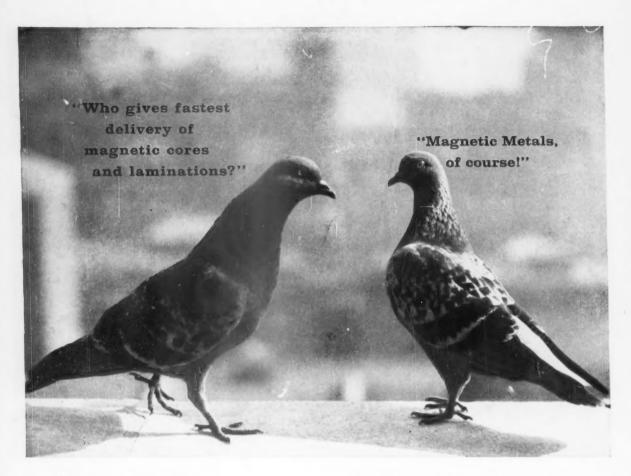
For 73 years Sunoco has meant quality right down the line. Today, this quality is found in more than 400 Sunoco industrial products. Sun OIL COMPANY, Phila. 3, Pa., Dept. I-14. In Canada: Sun Oil Company

Limited, Toronto and Montreal.

MAKERS OF FAMOUS CUSTOM-BLENDED BLUE SUNOCO GASOLINES







It's the wise bird who turns to Magnetic Metals for hurry-up service on magnetic cores and transformer laminations. Magnetic Metals keeps on hand an enormous stock of lamination dies, always ready to stamp out the laminations you need, without the delay or added expense of tooling up. And Magnetic Metals stock of magnetic alloys—largest commercial stock in the world—makes immediately available to you the widest choice of magnetic characteristics.

At both our East and West Coast plants, Centricores" and Powdered Permalloy Filtoroid" cores are stocked in all standard permeabilities and sizes for immediate shipment, and specials can be made to your specifications on short notice.

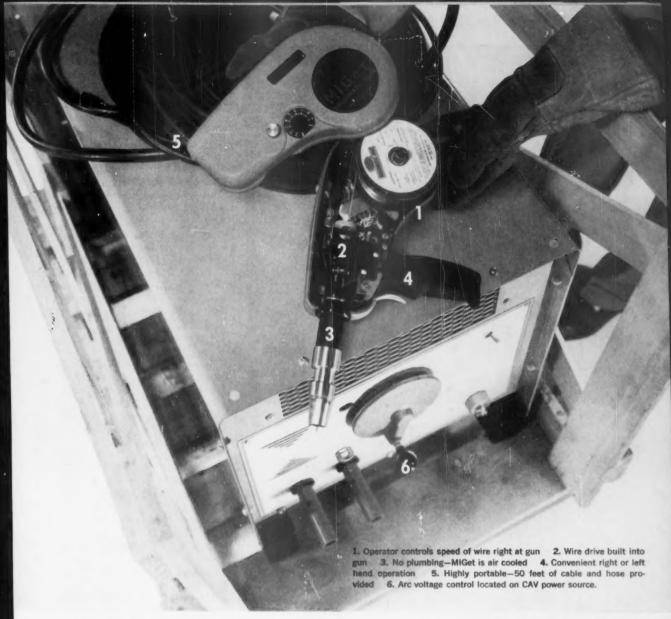
In addition to ultra-fast delivery, you get expert engineering guidance on the use of magnetic materials and—most important—the consistent uniformity of performance that sets Magnetic Metals cores and laminations apart.

Why not get in touch with Magnetic Metals today?



Hayes Avenue at 21st Street, Camden 1, N.J.
853 Production Place, Newport Beach, California
transformer laminations • motor laminations • tape-wound cores
powdered molybdenum permalloy cores • electromagnetic shields

For More Facts Write No. 237 on Information Card-Last Page



DO HI-SPEED AIRCOMATIC WELDING ANYWHERE-\$99 with new MIGet UNIT PACKAGE! (no separate control needed) only

Airco now gives you the simplest, lowest price gas-shielded metal-arc welding package in the industry

(1) Hi-speed highly portable MIGet welding gun, with handy knob to adjust wire feed speed; model AH20-E.

New Aircomatic MIGet CAV power source, with con-

trol to adjust are voltage.

The new MIGet UNIT PACKAGE enables you to make numerous short-length welds... at a remarkably low cost.
You can work up to 50 feet from the power source, on anything from radar antennas to crawl-in tunnels.

You can weld mild steel with Dip Transfer using CO₂ or AG25; aluminum with Spray Transfer or Dip Transfer using argon; stainless steel with Dip Transfer using AG1.

The MiGet gun connects directly to the power source. It weighs only 2% pounds. Handles .030" and 364" aluminum wires, and .030", .035" and .045" hard wires. It is rated at 200 amperes 100% duty cycle.

The power source, in which the "welding current takes care of itself," is a single phase, DC rectifier, CAV type, rated at 200 amperes 60% duty cycle. Reactance for Dip Transfer is

Here is Aircomatic-quality gas shielded metal arc welding at an unmatched low price of \$995!*

Airco — and only Airco — makes everything you need for any kind of welding. Call your nearest Airco office or Authorized Airco Distributor. Look in your Classified Telephone Directory under "Welding Equipment and Supplies" for your nearest Airco representative.

*Zone I price. Zone II price-\$1015.00



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A division of Air Reduction Company, Incorporated 150 East 42nd Street, New York 17, N. Y. More than 700 Authorized Airco Distributors Coast to Coast

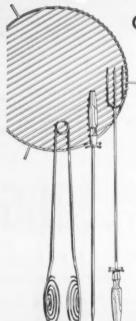
On the west ceast-Air Reduction Pacific Co., Internationally-Airco Co. Int'l., In Canada-Air Reduction Canada Ltd. . All divisions or subsidiaries of Air Reduction Co., Inc.

For More Facts Write No. 238 on Information Card-Last Page



Example: FINER "TOOLS" FOR

OUTDOOR LIVING



There are no finer grills, implements or "tools" for outdoor living than those made from Continental Wire. There's a temper, gage and finish for almost any productwith smooth clean surface for fast production, and quality to take the forming you require for your product.

Your product may be entirely different -hardware for venetian blinds, or ball bearings, or automotive parts. For a wide variety of applications you can get just the right wire at Continental, in the temper, size, and steel analysis you require.

For your wire requirements in low, medium low, medium high or high carbon steels, round or special shaped, in many different coatings, drop us a line. Our mill technicians have solved hundreds of wire problems, and will be happy to give you the benefit of their experience. Write for free copy of the Continental Wire Manual.

WIRE SPECIALISTS FOR OVER HALF A CENTURY

CONTINENTAL STEEL CORPORATION · KOKOMO · INDIANA

PRODUCERS OF: Manufacturer's Wire in many sizes, tempers, and finishes, including Galvanized, KOKOTE®, BRYTITE®, FLAME SEALED®, Coppered, Tinned, Annealed, Liquor-Finished, Bright and special shaped wire. Also Welded Wire Reinforcing and Galvanized Fabric. Nails, Continental Chain Link Fence and other products.

For More Facts Write No. 239 on Information Card-Last Page

Association News

(Continued from page 144)

als," said E. Heineman of General Electric at a recent threeday purchasing management seminar held by Marquette University and the Milwaukee Association of Purchasing Agents. He also defined and defended the concept of materials management and suggested the role of purchasing in this integrated opera-

Pitched to an executive level, the seminar featured many other informative sessions, including:

Profit Management-Lecturer: J. K. Fowlkes, president of Value Analysis, Inc. H. J. Jungbluth, R.T. & E. Corp., was moderator and F. L. Brewer, A. O. Smith Corp. was chairman of the work-

Internal Communication—Lecturer: Dr. R. N. McMurry, Mc-Murry Co., J. T. Clancy, Kremers-Urban Co., was moderator, and C. Brooks Smeeton, Marquette University, was workshop chairman

Moderator of the materials management seminar was W. H. Pritchard, of Kearney & Trecker Corp., A. D. Foote, of Allis-Chalmers Mfg. Co., served as chairman of the workshop.

In his lecture, Heineman declared that materials management "was not necessarily a matter of organization, but more an attitude or way of life." Although, he conceded that some large and prominent companies operated successfully without a materials organization, he said that they undoubtedly had developed the proper attitude about the importance of materials.

Heineman included in these items his definition of materials management: the determination of requirements; purchasing, pricing, and price analysis; receiving, storing and verifying incoming materials; determination of commodity classifications for incoming and outgoing shipments; transportation; factory load planning; and production scheduling.

He noted that many companies had "backed into" the materials management concept simply because mechanized data processing was not feasible without it.



Millions of kitchens in corrugated

America's fifty million homes use appliances by the kitchenful. Millions of toasters, coffee makers, ranges, washers and other wifesavers are shipped in boxes by Hinde & Dauch Division. Leading appliance manufacturers know they can count on H&D for money-saving corrugated containers in volume.

For More Facts Write No. 240 on Information Card-Last Page





Hinde & Dauch Division

17 Plants • 42 Sales Offices • Sandusky, Ohlo

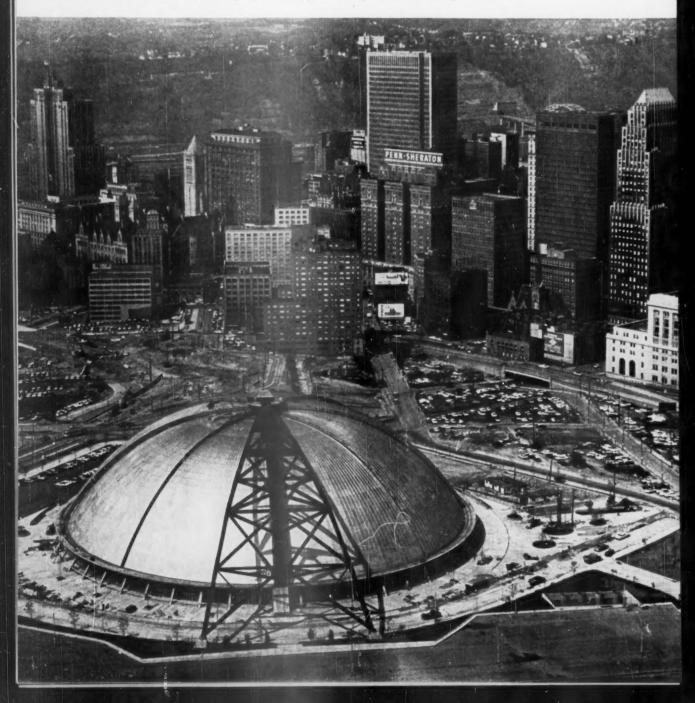
Only star performers in this arena

Because of the persistence of business and civic leaders, skillful engineering, and close cooperation of material suppliers, Pittsburgh can now boast of the world's largest dome and the only one that *moves*. The dome is as high as a 12-story building, 415 feet in diameter, and it's supported by a 1,400-ton steel tripod that holds the eight-leaved roof like a hand holding the top of a cap. Six of the eight leaves are free to roll back and

let in a view of the sky. For theatrical performances, a section of 2,100 seats can be raised hydraulically to uncover a 114' by 130' stage... another first.

On the opposite page are three examples of how careful planning and quality building materials from Koppers helped the Public Auditorium Authority insure permanence and star performance from its world-famous Arena.

Architects: Mitchell & Ritchey, Pittsburgh, Pa. Owner: Public Auditorium Authority of Pittsburgh and Allegheny County. Executive Director: Edward Fraher. Resident Consulting Engineer and Superintendent of Construction: H. Rey Helvenston.





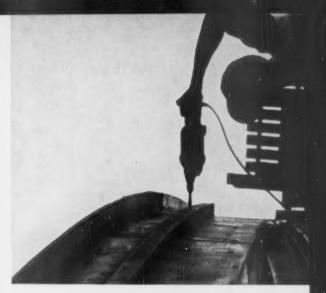
Sound traps keep the fans quiet

The auditorium's powerful ventilating system moves 130,000 cubic feet of air per minute—and to stifle the roar of the high-powered fans, the engineers installed 118 AIRCOUSTATS, designed and manufactured by Koppers. The AIRCOUSTATS are located in the ductwork of air intakes and in the 24 huge metal pylons which discharge heated or cooled air into the auditorium. AIRCOUSTATS' scientific sound-trap design muffles all frequencies of fan noise—but doesn't block the smooth passage of air. They're easy to install in new or existing ductwork and they're sturdy, dust-free, and fireproof. For more information on completely quiet air circulation, check the coupon.



Water-tight Coal-Tar Pitch Roof that thousands walk on

An open, 50-ft.-wide walkway with a view of the Golden Triangle encircles the base of the dome. More than twothirds of this promenade deck is also a roof for exhibit and meeting rooms below. To keep this section absolutely dry at all times, workmen applied a coat of Koppers Coal-Tar Pitch over the reinforced concrete base. Then, after a layer of rigid insulation, came five more applications of Coal-Tar Pitch with alternate layers of tar-saturated fabric and felt. Over this waterproofing, the patterned concrete walking surface was placed. The multi-ply membrane under the concrete walking surface prevents water penetration, spalling of concrete, and rusting of reinforcing steel. In fact, Coal-Tar Pitch is such a waterproof material that it is often used on roofs that are permanently flooded. Check the coupon for more information on Koppers Coal-Tar Pitch for Built-Up Roofs.



Pressure-treated wood provides light, strong, permanent anchor

Wood—one of the *oldest* construction materials, proved to be the *best* material for the vertical nailing strips that anchor the dome's stainless steel sheets. Other rigid materials would create condensation that would reduce the effectiveness of the blanket insulation that comes in direct contact with the nailers. Wood is light, yet is strong enough to hold screws that attach the batten assemblies which hold the stainless steel roofing sheets in place. And to make this wood as permanent as the roof itself, the 90,000 lineal feet of 2-by-2's were pressure-treated by Koppers. A chemical preservative was forced deep into the wood fibers where it gives permanent protection against moisture and decay.

gives permanent protection against moisture and decay. In addition, Wolmanized® pressure-treated lumber was used in the promenade deck expansion joints. Non-Com® fire-protected wood was used in certain air handling equipment rooms to attach cork board vibration damping insulation. Check the coupon for information about wood that is pressure-treated for permanence.

*Koppers Trademark

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Engineering & Construction • Gas & Coke
Metal Products • Plastics • Tar Products
Wood Preserving • International

PUT THESE IDEAS TO USE NOW!

To: Fred C. Foy, Che Koppers Compa Koppers Building	irman ny, Inc., Room 1429 g, Pittsburgh 19, Pa.	3
Please send additio	al information about:	
☐ Pressure-treated ☐ AIRCOUSTAT	Sound Traps	
Name		
Company		_
Job Title		
Address		_
City	Zone State	



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For More Facts Write No. 242 on Information Card—Last Page

News

Cost Cutting Featured in Materials Handling Guide

The materials handling division of Yale & Towne Manufacturing Co. has developed a "Management Guide to Productivity" to aid in uncovering unnecessary expenses and inefficiencies in plant utilization and materials handling.

Prepared in cooperation with Professor James R. Bright of Harvard Business School, the guide consists of seven basic efficiency cost ratios. For the average plant, the ratios can be calculated in less than a day. The technique is designed to pin-point problems and to show where cost reduction opportunities exist—rather than to suggest corrective measures.

The ratios are presented in a form that helps managers or engineers recognize excess material handling costs. Each is accompanied by a formula which permits the user to calculate his own plant's performance; worksheets are provided where necessary.

Some of the factors studied are: proportion of materials handling labor to total labor force, labor effort lost by skilled workers in handling materials instead of performing production tasks, time required for actual production work compared to total time of material in plant, and actual level of operation of production machines compared to theoretical capacity.

Copies of the guide may be obtained free of charge from Yale & Towne Mfg. Co., 11,000 Roosevelt Blvd., Philadelphia 15, Pa.

Report Shows How Buyers Can Help Small Business

A professional buyer can contribute to company profits and be of practical assistance to operating heads through his knowledge of the market and skillful buying. Even in companies too small for a full-time purchasing agent, the purchasing activity can be made more productive and less time-consuming by the establish-

(Please turn to page 154)



YOU CAN DO BETTER WITH



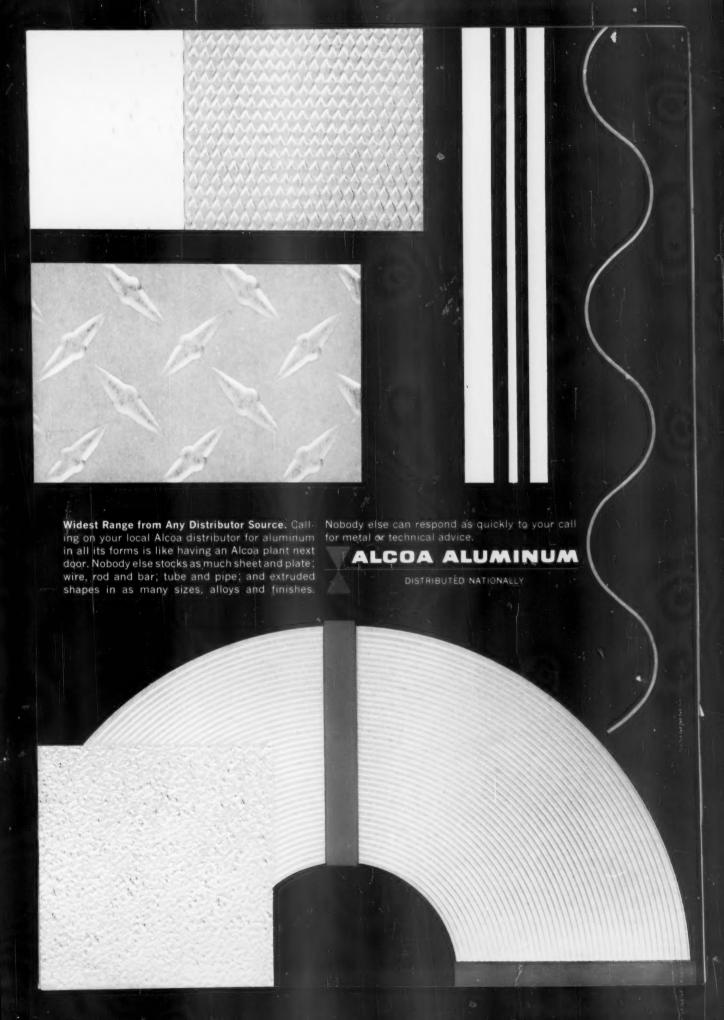
ENGINEERED STAMPINGS



Your stampings cost may often be cut simply by slight changes recommended by our engineering staff.... Also, our engineers frequently show how secondary operations can be minimized or eliminated entirely! And real savings here are obvious.... Inform yourself!



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ALABAMA Miningham 5
Hinkle Supply Company, Inc.
(Fairfax 2-4541)
The J. M. Tuil Metal & Supply Co., Inc.
(Fairfax 3-1612) ARIZONA

Pheenix Ducommun Metals & Supply Co. (Bridge 5-4471) Pacific Metals Company, Ltd. (Alpine 8-7821) CALIFORNIA

CALIFORNIA
Borkeley 10
Ducommun Metals & Supply Co.
(Thornwall 1-1820)
Lee Angeles 50
Benjamis Metals Company
(Rod & Bar) (Nevada 6-0611)
Les Angeles 54
Ducommun Metals & Supply Co.
(Ludiow 8-0161)
Les Angeles 22
Pacific Metals Company, Ltd.
(Raymond 3-5431)
Lee Angeles 22

Tubesales (Tube & Pipe) (Raymond 3-7781) Les Angeles 22

San Diega Ducommun Metals & Supply Co. San Diego 1
Pacific Metals Company Ltd.
(Belmont 4-3252) San Francisco 7
Pacific Metals Company, Ltd.
(Underhill 3-5600)

COLORADO Denver 16
Marsh Steel & Aluminum Co.
(Keystone 4-1241)
Denver 16
Metal Goods Corporation
(Dudley 8-4141)

CONNECTICUT

Mitterd Edgcomb Steel of New England, Inc. (Trinity 4-1631) Windoor Whitehead Metals, Inc (Murdock 8-4921)

Jacksenville 5 The J. M. Tull Metal & Supply Co., Inc. (Evergreen 7-5561) Miami

The J. M. Tull Metal & Supply Co., Inc. Tampa 10 The J. M. Tull Metal & Supply Co., Inc. (3-6741)

GEORGIA

Atlanta 2 The J. M., Tull Metal & Supply Co., Inc. (Jackson 5-3871) HAWAII Henolulu TI Aluminum Products Hawaii, Ltd. (94-861)

IDAHO Boise Pacific Metal Company (3-6468)

ILLINOIS Chicago 80 Central Steel and Wire Company (Republic 7-3000)

(Republic 7-300) Chicage 80 The Corey Steel Company (Bishop 2-3000) Chicage 23 Steel Sales Corporation (Bishop 7-7700) INDIANA

Indianapolis III Steel Sales Co. of Indiana, Inc. (Liberty 6-1535) die TR KANSAS

Wichita Marsh Steel & Aluminum Co. (Whitehall 2-3231) KENTUCKY

Louisville 3
Williams and Company, Incorporated
(Juniper 3-7781)

MARYLAND Baltimore 7 Whitehead Metais, Inc. (Windsor 4-2000) MASSACHUSETTS

Cambridge 39 Whitehead Metals, Inc. (Trowbridge 6-4680) (Frowbridge 6-4660)

Roxbury

Eastern Metal Mill Products Company
(Highlands 2-5900)

MICHIGAN
Detroit 12
Central Steel and Wire Company (Twinbrook 2-3200)

Detroit (Hazel Park)

Meier Brass & Aluminum Co.
(Jordan 6-3902)

Detroit 10

Stool School Sch Steel Sales Co. of Michigan (Tyler 6-3000)

MINNESOTA Minneapolis 13 Steel Sales Co. of Minnesota (Sterling 1-4893)

MISSOURI North Kansas City 18 Marsh Steel & Alumin (Grand 1-3505) North Kansas City 18 St. Louis 14
Metal Goods Corporation
(Harrison 7-1234)
St. Louis 10
Steel Sales Co. of Missouri, Inc.
(Prospect 1-5255)

NEW HAMPSHIRE Nashua Edgcomb Steel of New England, Inc (Tuxedo 3-7731)

NEW JERSEY Elizabeth
Adam Metal Supply of New Jersey
(Flanders 1-2550)
Englewood
Tubesales (Tube & Pipe)
(Lowell 7-4400)

Harrison Whitehead Metals, Inc. (Humbolt 5-5900) Hillside 5 Millside 5 Miller Steel and Aluminum Division of Robert Campbell Co., Inc. (Waverly 6-6000) NEW YORK

Albany 1 Eastern Metals Warehouse, Inc. (IV 9-3281) Buffalo 17 Brace-Mueller-Huntley Inc. (TR 7-8700) Buffalo 7 hitehead Metals, Inc.

(TR 6-3100) New York (Long Island City 1)

Radin metal supply, the (Stilwell 6-7737) New York (Brooklyn)
New York (Brooklyn)
New York (Brooklyn)
New York 14
Whitehead Metals, Inc. (Watkins 4-1500)
Rochester 6
Adam Metal Supply of Rochester (Locust 2-4260)
Rochester 10
Brace-Mueller-Huntley, Inc. (Congress 6-6560)
Rochester 10
Rochester 10
Rochester 11
Syracuse 11

(Butter 8-214)
Syracuse 1
Brace-Mueller-Huntley, Inc.
(Howard 3-3341)
Syracuse 1
Whitehead Metals, Inc.
(Howard 3-6241)

Greensboro Edgcomb Steel Company (Broadway 5-8421) OHIO Cincinnati 14 Central Steel and Wire Company Avon 1-2230)

Cincinnati 37 williams and Company, Incorporated (Valley 1-5555) Cleveland 28 A. M. Castle & Co. (Axminster 2-7600)

filhams and Company, Incorporated 91ah 1-5000) 91ambus 12 Illiams and Cleveland 14 Williams and Company, Incorporated (Axminster 4-1623) Toledo 12 Williams and Company, Incorporated (Greenwood 5-8661)

OKLAHOMA Tulsa 13 Metal Goods Corporation (Temple 6-2561) OREGON

PENNSYLVANIA Williams and Company, Incorporated (Cedar 1-8500)
York

omb Steel Company (47-1931) RHODE ISLAND Statersville Edgcomb Steel of New England, Inc. (Poplar 7-0900)

SOUTH CAROLINA

Greenville
The J. M. Tull Metal & Supply Co., Inc.
(Cedar 3-8366) TENNESSEE Memphis 8 Metal Goods Corporation (Whitehall 8-3407)

TEXAS McCormick Steel Company (CH 7-3104) Dallas 35 Metal Goods Corporation (Fleetwood 1-3271) (Fleetwood 1-3271)

Mouston 1

McCormick Steel Company
(OR 7-5671)

Mouston 1

Metal Goods Corporation
(Riverside 7-1110)

UTAH Salt Lake City 1 Pacific Metals Company, Ltd. (Davis 2-3461) WASHINGTON

Ducommun Metals & Supply Co. (Parkway 5-1500) Seattle 4 ific Metal Company (Main 2-6925) Spokane 4
Pacific Metal Company
(Keystone 5-3681) WISCONSIN

WISCONSIN Milwaukee 1 Central Steel and Wire Company (Humboldt 1-5000) Milwaukee 9 Steel Sales Co. of Wisconsin (Hilltop 7-2020)

Call The Aluminum Man . . . his stock's the most complete!

Your Alcoa distributor sales representative-The Aluminum Manmaintains a warehouse bulging with sheet and plate: tube and pipe: extruded shapes: wire, rod and bar. His stock represents the widest range of aluminum products available from any distributor source. He can arrange for them to be slit, sawed or sheared to your specifications-furnish technical advice you may need on alloy selection and fabrication techniques. He's your fastest supply line for aluminum in any form when you need it. Your nearest Alcoa distributor is listed on this page, so give him a call . . . soon. Aluminum Company of America, 846-T Alcoa Building, Pittsburgh 19, Pa.

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INDUSTRIAL RETAINING RING PRICES REDUCED UP TO 51%



Series 1000, Series 3000 and Series 3100 Industrial Retaining Ring prices—in quantities up to 100,000—have been greatly reduced.

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Use this coupon to send for your new, revised IRR Price List.

INDUSTRIAL RETAINING RING COMPANY

Please send me, free, a copy of the new 1961 IRR Price List — 61P.

____I would also like to have your representative call.

Name ______Title_____

Company _____

Address ______

Zone ____State_____

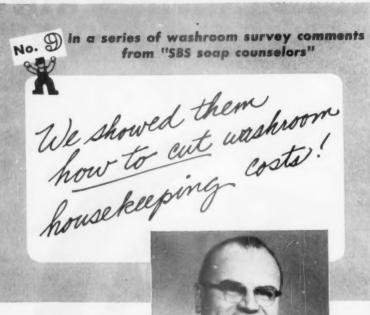


Originators of modern retaining ring dispensing

INDUSTRIAL RETAINING RING COMPANY

57 Cordier Street, Irvington 11, New Jersey

For More Facts Write No. 244 on Information Card-Last Page



Edward P. Goeres

is a SBS soap counselor in the Midwest. A specialist in industrial soaps, he has helped many plants reduce their wash-up, clean-up costs. Here's the result of a typical survey:



"We found washroom clean-up costs exorbitant because this plant was using slow-acting scrub soaps, scouring powder and disinfectants. These single-purpose products required lots of elbow grease and wasteful duplication of labor.

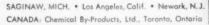
"We naturally recommended SBS 50. We let them see for themselves how effectively this one product, SBS 50, cleans, disinfects, sanitizes and deodorizes in just one operation . . . without wasting either labor or material! We also stressed SBS 50's exclusive 4-Way Action that kills germs on fixtures, floors and walls . . . and leaves an invisible "Bacteria Barrier" on sanitized surfaces that gives continuous protection."



Money-saving suggestions like this begin with OPERATION PINPOINT—a thought-provoking presentation filled with facts about skin hygiene and washroom maintenance. The SBS soap counselor serving your area can pinpoint the right soap to do every skin cleansing job best and at lowest cost in your plant. Let him show you OPERATION PINPOINT—. just call your nearest SBS office, collect.

the washword of industry







For More Facts Write No. 215 on Information Card-Last Page

News

(Continued from page 152)

ment of a definite, formal procedure.

Those are some of the highlights of a report entitled, "Purchasing Problems of Small Manufacturers in Alabama and Some Suggestions to Solve Them." The study was made under a grant by the Small Business Administration and was prepared by the Bureau of Business Research of the University of Alabama.

Salesmen Get The Business

The report notes that in small manufacturing plants, the principal sources of supply are salesmen who seek out the purchaser on their own initiative. These suppliers are not necessarily the sources which the purchaser has determined are best for him on the basis of quality and price.

According to the report, "For many years, the job of purchasing was done by non-specialists. They often did at least one other task that was considered more important than their purchasing duties. In recent decades, our expanding economy has made the competition for materials, parts, supplies, and machines more and more intense. As a result, purchasing has become recognized as an important, specialized job."

A full copy of the report is available for \$1 from the bureau at P.O. Box KK, University, Ala.



"Technically she's a vendor. . . . Let's fill out those forms, boy."

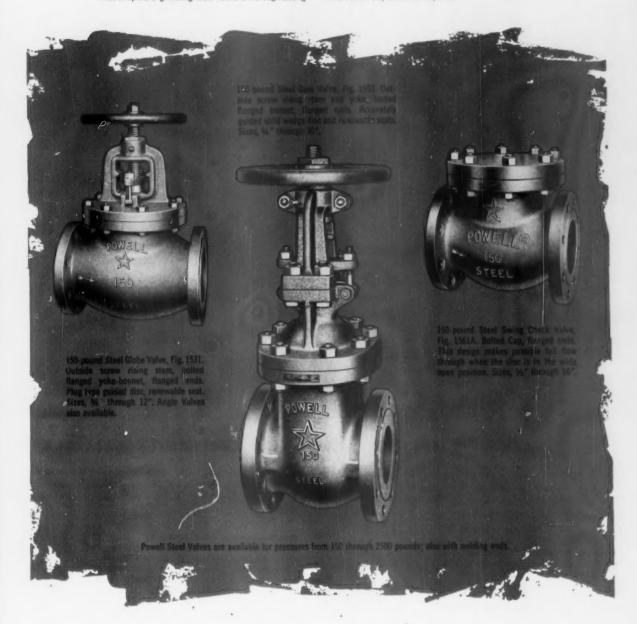
LOOK TO POWELL VALVES

For the largest selection of valves, look to Powell. This includes gate, globe, angle and check designs in bronze, iron and steel, as well as industry's widest selection of special alloys. And, Powell valves are specifically designed for water, oil, gas, steam, air and corrosive fluid applications ... whatever you need!

You can count on each Powell valve to be the result of the most complete engineering know-how and thorough testing

procedures. These combine to produce valves of the highest reliability, and at the lowest cost . . . you save through Powell performance on your job.

In addition, you will find Powell maintains stock across the nation, near your need. So, your order is filled and delivered more quickly, at less trouble to you. For further information, contact your nearby Powell valve distributor or write The Wm. Powell Co., Cincinnati 22, Ohio.



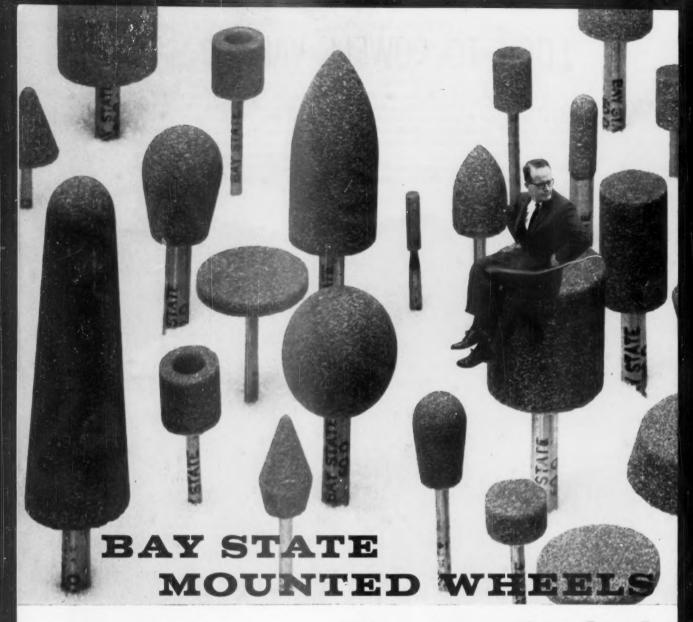
115th year of manufacturing industrial valves for the free world

POWELL STEEL VALVES

THE WM. POWELL COMPANY CINCINNATI 22, OHIO

For More Facts Write No. 246 on Information Card-Last Page





set a new standard

Bay State has just completed a concentrated research and engineering program designed to make Bay State mounted wheels the finest available anywhere. Results are paying off for users in more uniform grinding action... easier operation...and virtually complete elimination of defective materials and workmanship. These wheels are as nearly perfect as the most advanced abrasive technology can make them.

POSITIVE WHEEL-TO-MANDREL BOND Deeply knurled mandrel ends and specially formulated bonding material weld wheel and mandrel into a single, rock-solid unit. Constant, rigid quality control tests are made to check this Bay State feature.

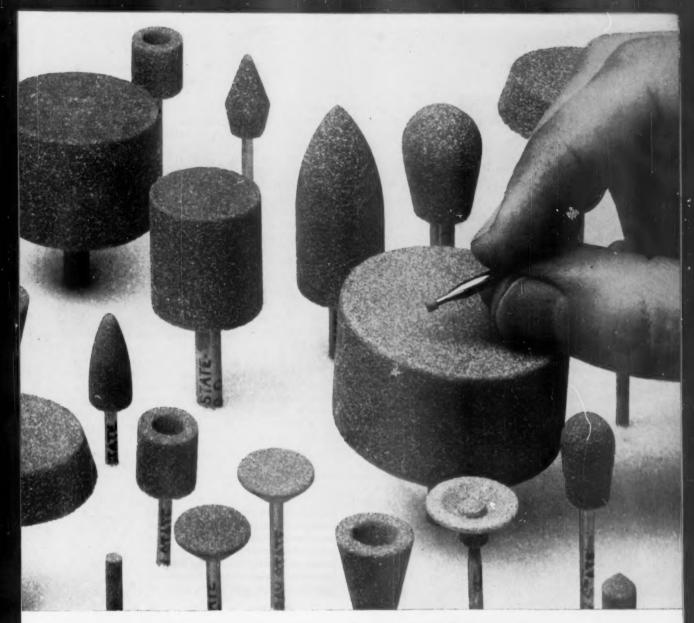


wheel is molded oversize and then ground to shape on its own mandrel so that it automatically becomes perfectly symmetrical and is perfectly concentric with the center of the mandrel itself. Result: Every wheel runs true from start to finish... no breaking in required... no hard spots, no soft spots, the whole wheel does a 100% job of grinding right down to the mandrel.





BAY STATE



of excellence for the industry

maximum mandrel uniformity Mandrel diameters are uniform to very close tolerances. No fumbling when operator changes wheels because new wheels can be locked into place with a minimum change in the collet or chuck setting.

1

complete inventory immediately available. Hundreds of different combinations of shape, grit, size, porosity, bond and mandrel size are in stock, ready to be shipped to users immediately. Bay State's 30-page catalog makes it simple to choose the specs you need for any job.

For special mounted wheels, call your Bay State, direct or distributor, representatives. They are abrasive specialists. Better grinding at lower cost . . . that is their business.

Bay State Abrasive Products Co. Westboro, Mass.

Please send me the new Bay State Mounted Wheel catalog with full technical information on the best mounted wheels available to industry.

Company	
Name	
Address	
City	State

ABRASIVES

Bay State Abrasive Products Co., Westboro, Massachusetts.

In Canada: Bay State Abrasive Products Co., (Canada) Ltd., Brantford, Ontario.

Branch Offices: Chicago, Cleveland, Detroit, Los Angeles, Pittsburgh. Distributors: All principal cities.

Industry



The Wellman Bronze and Aluminum Co. has moved its plant facilities from Cleveland, Ohio to the former Dow Metal Products Co. magnesium and aluminum casting plant in Bay City, Mich. Wellman leased the foundry from Dow in February of this year.

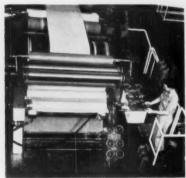
Wellman supplies light metal castings. The Bay City facilities make it the largest foundry in the United States for sand and permanent mold magnesium and aluminum castings, and will permit additional activity in these

fields. Major expansion will be made in the aluminum castings area. New aluminum melting furnaces have been installed, and when expansion is complete, the foundry will have 25 aluminum and 6 magnesium permanent molding units. Wellman patterns have been moved from Cleveland to Bay City without interrupting existing orders. Present products include parts for missiles, aircraft and instrument firms as well as a wide range of commercial cast-

Dresser Engineering Inc. opened a new plant in Boynton Beach, Fla., recently to serve as a research and southern distribution center for Dresser Products Inc. of Providence, R. I.

The Atkins Saw Division of Borg-Warner Corp. has moved plant and offices from Indianapolis, Ind., to Greenville, Miss. The new plant, now in production, will be headquarters for all Atkins manufacturing, sales and service facilities.

The B. F. Goodrich Company has started operations from its new St. Louis distribution center in Overland, Mo. The 80,000 square foot facility will supply B. F. Goodrich products to nearly all of the mid-west.



A new continuous strip metal coating line, put into operation recently at the Chicago plant of Litho-Strip Corp., paints up to 1,000,000 sq ft of coil steel per day. The new \$1,250,000 line is believed to have greater capacity than any other in existence, whether its output be measured (Please turn to page 166)

NEW Franklin standard motors of LIGHTWEIGHT aluminum



Speed-up ASSEMBLY LINE HANDLING!

Up to 30% lighter than ordinary motors. Easier handling. Less shipping costs. Yet the new Franklin integral hp motor is stronger, has greater shock resistance than comparable cast iron motors. See it. And write Department P-6 for a free color brochure.



For More Facts Write No. 249 on Information Card-Last Page 160



new decorative patterns

PERFORATED

Just three of H & K's new patterns are illustrated here. Many more contemporary and traditional designs are available in steel sheets for immediate shipment from stock. There is also a vast selection of patterns and

areas which can be

custom fabricated from existing dies ...





Chicago Office and Warehouse

New York Office and Warehouse

5622 Fillmore St., Chicago, III. 114 Liberty St., Dept. PC, New York, N.Y. For More Facts Write No. 248 on Information Card-Last Page

PURCHASING



M&T-a valuable NEW source for everything in NICKEL plating supplies

A new source for nickel plating supplies that takes second place to no other company in plating experience and service has become available to you.

M&T has become a prime distributor for The International Nickel Company's nickel anodes. All types and sizes requisitioned by your plating people are now warehoused in convenient locations. These supplement other M&T nickel products which include nickel salts and nickel bath brighteners.

To purchasing people, the importance of this development goes beyond that of gaining a supplier that stands back of quality, and knows what quality is.

Nickel plating is the vital middle step in the complete cycle of copper, nickel and chromium plating. M&T has been a pioneer in these areas. It is now in a position to bring undivided responsibility for the *entire* bright plating operation — with products that save on operating costs — with service that keeps trouble out of the finishing line.

Apply a "value analysis" yardstick to a supplier's background. See the concrete benefits derived through the service of a technically qualified M&T Plating Engineer who knows where to look for and find potential savings. Ask him about it.



plating products · welding products coatings · chemicals · minerals · detinning

METAL & THERMIT CORPORATION, General Offices: Rahway, New Jersey In Canada: M & T Products of Canada Ltd., Rexdale, Ontario

For More Facts Write No. 250 on Information Card-Last Page



NOW OPEN: The new Sheraton-Chicago Hotel

Chicago's more than ever a wonderful town with the opening of one of the world's newest and finest hotels - the new Sheraton-Chicago. A soaring new building on beautiful Michigan Avenue overlooking the Lake and the Loop, with a posh swimming Sheraton Corporation shares are listed on the New York Stock Exchange

pool, three capital restaurants, complete air conditioning, even your own private stock of ice cubes served from a Norge Thermoelectric refrigerator in your guest room. Reservations now . . . and Sheraton confirms the rate as well as the room.

Diners' Club card honored for all hotel services



the proudest name in HOTELS

Reservation or Direct-Line Teletype call your nearest Shoraton Hotel

EAST

Park-Sheraton Sheraton-East (the Ambassa Sheraton-Atla (the Ambassado Sheraton-Atlanti Sheraton-Russel BOSTOM Sheraton-Plaza WASHINGTON Sheraton-Cariton Sheraton-Par PITTSBURGH *Sheraton-Biltmore SPRINGFIELD, Mass. *Sheraton-Ten Eyck ROCHESTER *Sheraton Hotel *Sheraton Hotel BUFFALO *Sheraton Hotel SYRACUSE BINGHAMTON, N. Y.

MIDWEST

CHICAGO Cheraton-Blackstone Cheraton-Chicago Sheraton DETROIT Cadillac CLEVELAND \$T. LOUIS Sheraton-Jefferson
OKLAHOMA CITY OKLANDO ORIGINA Sheraton ORigina OMAHA
Sheraton Fontenello AKRON
Sheraton Hotel FRENCH LICK, Inc. "Sheraton-Johnson SIOUX CITY, lowa *Sheraton-Warriot SIGUX FALLS, S. D. CEDAR RAPIDS, lows

SOUTH

DALLAS PALLAS

Sheraton-Callas

MOUSTON

Sheraton-Lincoln
(opens March 1962)

WEW ORLEANS

Sheraton-Charles Sheraton-Chart
LOUISVILLE
*Sheraton Hotel *Sheraton Hotel

*The Watterson

MOBILE, Alabama

*Theraton-Battle Ho

WEST

SAN FRANCISCO PASABENA *Huntington-Sheraton PORTLAND, Oragon *Sheraton-Portland Hotel

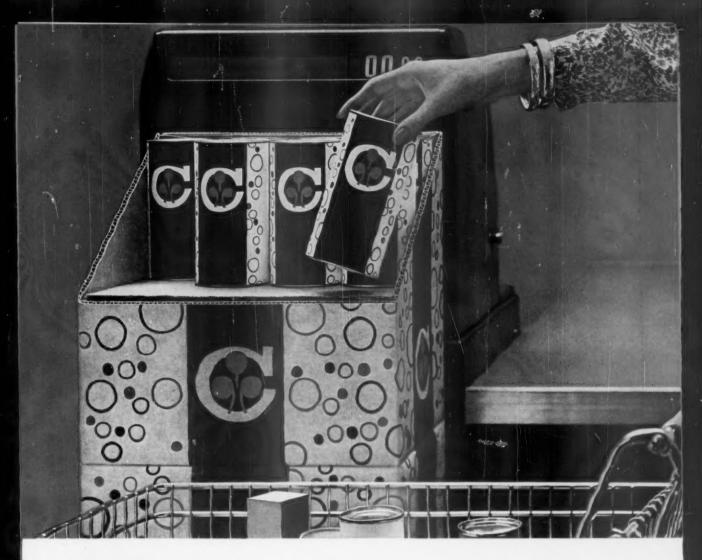
HAWAH

*Royal Hawailan
*Princess Kaiulani
*Moana
*SurfRider MAUI Kaanapali (opens June 1962) CANADA
MONTREAL
*Sheraton-Mt. Royal
*The Laurentien
TORONTO
*King Edward Sherat

*King Edward Sheraton NIAGARA FALLS, Ont. *Sheraton-Brock MAMILTON, Ont. *Sheraton-Connaught CARIBBEAN

IAMAICA (opens June 1962)
PUERTO RICO
San Juan
(opens December 1 ember 1962) (opens December ; OVERSEAS ISRAEL YEL AVIV Sheraton-Tel Aviv

*Free Park



PROBLEM: How to get sales appeal in your shipping container without the cost of three-color printing.

SOLUTION: International Paper's new *pastel* Gator-Hide, linerboard gives you *three* colors with two-color printing.

THIS DISPLAY container was made with two-color printing—on one of International Paper's new Gator-Hide pastel linerboards.

These amazing new linerboards are the lightest and brightest you can get without printing color on expensive bleached board.

They are typical of the wide range of fine linerboards available to you in the famous Gator-Hide series. Their purpose: better packaging at lower cost.

Other examples include non-abrasive boards, release-coated boards, weather- and slip-resistant boards and highly printable coated linerboards.

But our work goes beyond the creation of new boards. Packaging experts in our Container Division study the special needs of *your* product. They start with the best materials for the job. And then turn them into rugged—yet light-

weight - shipping containers that deliver your product in top selling condition at minimum cost.

International Paper can provide you with paper packaging that is designed —from the very beginning—to suit your product

Call any one of our twenty-two Container Division plants. Or contact your boxmaker, He has probably been doing business with us for years.



INTERNATIONAL PAPER

NEW YORK 17, N. Y.

Manufacturers of papers for magazines, books and newspapers - papers for home and office use - converting papers - papers and paperboards for packaging - shipping containers - folding cartons - milk containers - multiwall bags - grocery and specialty bags and sacks - pulps for industry - lumber, plywood and other building materials







Laminated plastics problems are not always solved easily. Many factors flame retardancy, moisture absorption, flexural or dielectric strength, delivery, cost—may affect your choice.

A call to CDF can quickly bring the right answer to your problem. CDF offers 60 years of experience and leadership in laminates... and the industry's widest selection of materials.

Your satisfaction is assured, because CDF research and technical service combine to provide a knowledgeable, practical approach to your application... at reasonable cost.



announcing... Carpenter now makes



Stainless Tubing and Pipe

The right answers to a wide variety of corrosion and high temperature problems in heat transfer equipment and process piping systems are provided by SEAMLESS Stainless Tubing and Pipe now made by Carpenter. At every stage of their manufacture, the accent is on quality and uniformity. Both are initially hot formed by the best available extrusion process. Stainless alloys for their production are made in Carpenter's own specialty steel mill to closely balanced analyses. Consistently uniform structure and utmost freedom from impurities throughout these stainless steels are assured by Carpenter's exclusive Mel-Trol® process.

Cold finishing gives all Carpenter SEAMLESS Stainless Tubing and Pipe extremely close accuracy of O.D. and I.D. dimensions, excellent physical properties and super-smooth surfaces. Optimum corrosion resistance, strength and working properties are made certain by careful annealing, pickling

and passivating under strict quality control. Rigid final tests and inspections insure that all Carpenter SEAMLESS Stainless Tubing and Pipe always is supplied exactly "as ordered".

Both tubing and pipe are available to ASTM, AMS and Government Specifications in a full range of standard stainless analyses and Carpenter Stainless No. 20Cb. Tubing sizes are ½" to 65%" with wall thicknesses of .004" to .864". Pipe sizes are ½" to 6" in Schedules 5, 10, 40, 80, 120, 160 and Double Extra Heavy. Popular types and sizes of both tubing and pipe are available from large stocks in principal U. S. cities.

Get full information on your needs from the nearest Carpenter Representative or Distributor. A new Selecting and Buying Guide, Bulletin 128, is available on request to The Carpenter Steel Company, Alloy Tube Division, Union, N. J.



Carpenter steel

The Carpenter Steel Company, Main Office and Mills, Reading, Pa. Export Dept., Port Washington, N. Y.—"CARSTEELCO" Alloy Tube Division, Union, M. J. Webb Wire Division, New Brunswick, N. J. Carpenter Steel of New England, Inc., Bridgeport, Conn.

For More Facts Write No. 253 on Information Card-Last Page



Fasson Self-Adhesive Nameplates Improve Appearance, Last Longer...

Silk-screened and embossed on Fasson's gleaming, metallized Mylar*-Vinyl, this Snap-on Tool nameplate won't tarnish, resists scratches and wipes free of grease and oil easily.

"The new Fasson nameplate is much more attractive than the original paper-base nameplate, even though the original was produced in two colors, whereas the Fasson material is produced only in black on silver," says George A. Smith, Advertising Manager of Snap-on Tools Corporation.

Fasson's many nameplate and decorative trim materials cost much less than metal nameplates, and go on in seconds without screws, clips or messy glues . . . because they're self-adhesive.

*Mylar is a DuPont Polyester Film

Send for free samples and literature



Fasson Products

An Avery Company
Dept. E, 250 Chester Street, Painesville, Ohio
Makers of self-adhesive papers • foils • films • for converters
For More Facts Write No. 254 on Information Card—Last Page

Industry

(Continued from page 160)

by weight, width of the strip it handles, or surface area treated.

Aluminum and cold-rolled and galvanized steel are fed into the line at one end and, in a continuous cycle of operations, are chemically cleaned and surface trea'ed, painted, cured, cooled and rolled up into coils for shipment to order. Coating, applied to one or both sides in one pass, may be any combination of colors and patterns of hundreds available in epoxy, vinyl, acrylic or alkyd finishes. Widths are run up to 68 inches, gauges up to .064 inch. Tolerance of coating thickness may be controlled to plus or minus .0001 inch of standard.



The Waterbury Farrel Foundry & Machine Co., founded 110 years ago, has opened a new 314,000 sq ft plant at Cheshire, Com.

A division of Textron, Inc., Waterbury Farrel manufactures metalworking machinery including cold heading machines, presses, and rolling mills. It also makes Sendzimir mills, used for precision cold rolling of stainless steel, hard alloys, and extra thin tinplate.

The new, one-story plant replaces century-old buildings in downtown Waterbury, 10 miles away. By eliminating the necessity for moving heavy machinery parts from one floor to another and by modernizing production flow, the new factory has substantially increased efficiency. Although there is approximately 20% less floor space in the new production facility, it has the capacity to handle approximately 20% more volume.

HEX SCREWS THIS BIG...

ACTUAL SIZE

are produced by

That's a 2"x10" hex screw, shown actual size. Like virtually every other size of hex screw and nut, it's available from stock at RB&W plants and warehouses. In this giant size range, hex screws come in fine and coarse thread, conform to SAE grade 2 and heat-treated grade 5 fasteners.

RB&W is one of the very few sources of supply that carries such large sizes as standard, and that produces them to the same high quality requirements established for all items in the complete fastener line.

When you need a giant—be sure to call on RB&W. Russell, Burdsall&Ward Bolt and Nut Co., Port Chester, N. Y.



Plants at: Port Chester, N.Y.; Coraopolis, Pa.; Rock Falls, Ill.; Los Angeles, Calif. Sales office and warehouse at: San Francisco, Calif. Sales offices at: Ardmore (Phila.), Pa.; Pittsburgh; Detroit; Chicago; Dallas. Sales agents at: Cleveland; Milwaukee; New Orleans; Denver; Fargo.

More Facts Write No. 255 on Information Card-Last Page



Cuts 1-inch bar stock in 23 seconds flat!

New Skil Model 701 . . . world's only portable electric, metal-cutting hacksaw!

This all-new, Skil Model 701 Recipro Saw is the only portable power saw made specifically for fastest cutting of any metal—from hardest alloys (including stainless) to mild steels and non-ferrous metals. It's the one saw you need for every metal cutting job that requires a portable tool for cut-off or pattern work.

Model 701 has 2 speeds—1000 and 1400 strokes per minute—for extremely fast cutting of different gauges and densities of metals, with longest blade life. Standard

equipment includes steel carrying case and 4 assorted blades.

New improved version of Skil's allpurpose Model 700 Recipro Saw also available. Has 2600 and 3500 spm speeds for wood, composition, plastic and routine metal cutting jobs.

For more information, call your Skil distributor. Look under "Tools-Electric" in the Yellow Pages. Or write: Skil Corporation, Dept. 125F, 5033 Elston Avenue, Chicago 30, Ill.

Skil Model 701 Recipro Saw makes toughest metal cuts fast

EXAMPLE—Model 701 cuts $\frac{1}{4}$ " x 1 $\frac{1}{2}$ " stainless steel angle in 65 seconds!

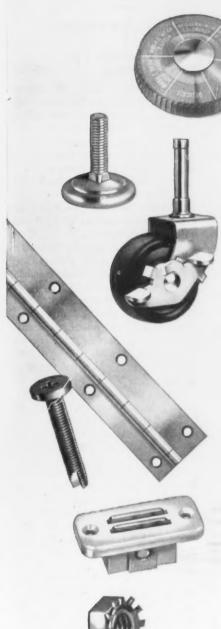
EXAMPLE—Model 701 cuts 2" cast iron pipe in 105 seconds!

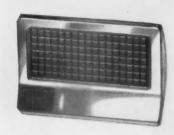
And because the Skil Model 701 has the *right* speed for any metal-cutting job, blades last longer—you save more money!



. and SKILSAW POWER TOOLS

For More Facts Write No. 256 on Information Card-Last Page







FUNCTIONAL or DECORATIVE...

APPLIANCE HARDWARE by NATIONAL LOCK

DIVERSIFIED MANUFACTURING EXPERIENCE is one big reason why home laundry and other major appliance manufacturers depend on National Lock for superior hardware, fasteners and plastic components . . . including catches, latches, casters, brake casters, leg levelers, continuous hinges, screws, bolts and plastic items. National Lock is a major supplier to more than 40 different O.E.M. markets. Our diversified plant facilities and designengineering skills stand ready to help you solve your hardware problems. Write us.



TONAL LO

INDUSTRIAL HARDWARE DIVISION

NATIONAL LOCK COMPANY

INTERNATIONAL DIVISION . 13 E. 40TH ST., NEW YORK, N. Y. . CABLE: ARLAB

HINGES . CASTERS . DIE CASTINGS . CATCHES . PLASTIC COMPONENTS . FASTENERS . . . ALL FROM 1 SOURCE

For More Facts Write No. 257 on Information Card-Last Page



Free booklet tells you what to look for in a pressure-sensitive tape

Here's a handy, new booklet that gives clear, concise answers to nearly any pressure-sensitive tape problem. It's based on Johns-Manville's long years of experience in the manufacture of tapes for electrical and industrial applications. It's called "How To Select A Pressure-Sensitive Tape," and tells you how to effect important economies; help speed production; eliminate knotty mechanical difficulties. It tells:

- Why the adhesive qualities of a tape are as important as the backing material.
- . What causes tape failure; and how to prevent it.
- A glossary of terms associated with pressure-sensitive tapes.
- · A complete list of authoritative technical data files available.

BOX 14. NEW Y	ORK 16, N. Y.
	a free copy of "How To Select A
Pressure-Sensitive	e Tape."
NAME	
NAMEADDRESS	

Book Reviews

Economics and American Industry

By Leonard W. Weiss John Wiley & Sons

\$7.50

Businessmen don't set prices the way the economics books say they do. Every purchasing agent learned this during his first year out of college. Supply-demand curves exist only in text books. Suppliers don't use them to price their products. In this book the author attempts to reconcile the difference between abstract economic theory and real-life pricing in various industries.

First, he discusses the industry where pricing most clearly approaches the text book norms: agriculture (when it is free from government interference.) Then he goes on to discuss "imperfect" competition. (Although the competition isn't "perfect" and doesn't fit the classic rules, it is very real indeed, as many businessmen can testify.) At its "least perfect." "imperfect" competition results in monopoly. The author discusses pricing in the aluminum industry before World War II as an example of the economic problems of a monopolistic industry.

When there are several producers in an industry-but not so many that the pricing and production policies of one won't have any significant effect on the others-we have an oligopoly. The author discusses two industries -autos and steel-as examples of oligopoly. He then discusses monopolistic competition as it exists in the retailing industry. He concludes with a chapter dealing with the effect of the cost of factors of production on the industry. His example compares wages in the steel industry with the marginal product produced by steel workers.

The book, unlike many in the field of economics, is reasonably readable since it deals primarily with actual industry practices rather than abstract theories. It could readily help broaden a purchasing agent's perspective of the industries with which he deals and the problems they face.



CALL YOUR MIDWEST DISTRIBUTOR

Midwest stocks chrome-moly fittings in all standard types, sizes and wall thicknesses—cutting costly downtime to a minimum.

And, if the fitting you need is not standard, it can be produced quickly from the full stocks of raw materials maintained by Midwest.

When you need replacement fittings, get back on stream fast! Call your Midwest distributor for quick, dependable delivery and service.

MIDWEST PIPING CO. INC.

1450 S. SECOND ST., ST. LOUIS 4, MO.

For More Facts Write No. 259 on Information Card-Last Page





To produce jam-free staples calls for absolute uniformity of wire temper and diameter and unvarying staple dimensions. Holding to tolerances of plus or minus .0005", International Staple and Machine Company, Herrin, Illinois, manufacture their Gold Crown® carton closing staples. The wire used is a special bright finish, copper-coated steel wire of cold rolling quality furnished by Keystone Steel & Wire Company. This round steel wire must have (1) correct temper throughout the coil, (2) critical tensile range and (3) a copper coating which works perfectly with International Staple's high-speed staple forming machines.

Mass production of steel staples by International Staple has been increased because of the forming characteristics of Keystone Wire which allow the wire to conform exactly to required tolerances and shaping.

In addition Keystone designed and built a platform carrier to control wire take off. This carrier means less scrap, longer runs, better protection in transit, better storage, easier wire handling and less time to set up the wire for the cold rolling operation.

Specifications for your product can be accurately analyzed and every detail closely controlled at Keystone. The wire you require can be uniformly produced through the latest and most exact methods known to the steel industry. Send us your specifications for our recommendations.

No. 16 platform carrier 600 lbs. continuous coil.



Keystone Steel & Wire Company · Peoria, Illinois, U.S.A.





KEYSTONE

MADE AT PEORIA, ILLINOIS, U.S.A.

What synthetic sealing materials should I use—and when

Environmental conditions generally dictate the type of synthetic rubber for a specific oil sealing application.

Where temperature, shaft speed, runout, eccentricity, and lubricant type are "normal", standard Buna N synthetic rubber compounds are satisfactory. If, however, the application is "dry running", a compound must be selected that will operate satisfactorily with a very small amount of lubricant. If the application involves excessive abrasion, highly "loaded" compound stocks should be provided. At

temperatures over 250° F polyacrylics or silicone compounds are indicated; if high temperature is accompanied by a solvent base or additive lubricant, polyacrylics are definitely preferred.

Thus many variables govern successful oil sealing. The chart below gives more data; for complete information from the world's foremost oil seal laboratories, call your National Seal engineer. He's in the Yellow Pages, under Oil Seals or O-Rings

SYNTHETIC RUBBER COMPOUNDS

RECOMMENDED APPLICATIONS

Comp.	Base Polymer	Min/Max Operating Temperature	Life Index	Price	Automatic Transmissions	Pinions	. Axle Seals	Engine Seals	Misc. Applications
B-63	Buna N	—40 F/225 F	100	100				Excellent for small gas engines.	Excellent for small non-spring loaded seals.
B-86	Buna N	—30 F/225 F	100	100		Satisfactory for medium temperature applications.	Truck and automotive rear axles. General use.	Satisfactory as gen- eral purpose material where temperature permits.	General purpose Buna N applications.
B-94	Buna N	60 F/250 F	100	100					Excellent against aromatics and some military aircraft oils, fuels.
B-95	Buna N	—30 F 225 F	100	100					Good dry running com- pounds for applica- tions requiring high durometer stock.
C-6	Buna N	—30 F/225 F	100	100			Excellent for semi- rough axles. Has good wear qualities.		Good for pressure seals due to high durometer and clean trimming.
L-28	Acrylon BA-12	—30 F 300 F	400	125	Good for temperature range indicated.	Satisfactory in single lip construction.	Sealed bearing high temperature applica- tions.	Satisfactory for auto- motive use. High tem- peratures.	Satisfactory for high temperature general applications. Can be used with EP or GL-4 oils.
L-34	Hycar PA-21	0 F/300 F	400	115	Good for temperature range indicated.	Dual lip limited contact for high temperatures.	Sealed bearing high temperature applica- tions.	Satisfactory for auto- motive use. High tem- peratures.	Satisfactory for high temperature general single or dual lips. Ok with EP or GL-4 oils.
S-48	Silicone*	80 F 400`F	1500	150	Excellent high and low temperature life.	Silicone Compounds Not Recommended		Excellent for general engine use. Suggested for premium gasoline and Diesel engines.	Excellent wide range material. Avoid use in EP and GL-4 oils.
S-49	Silicone*	—80 F 300 F	600	130	Good at high and low temperatures.		With Lubricants temperatures.	Very good for general engine use; premium gasoline and Diesel engines,	Very good wide range material. Avoid use in EP and GL-4 oils.

^{*}Silicones require special stabilization for satisfactory use in aromatic oils at high temperatures.



NATIONAL SEAL

Division, Federal-Mogul-Bower Bearings, Inc. GENERAL OFFICES: Redwood City, California

PLANTS: Van Wert, Ohio; Redwood City and Downey, California

For More Facts Write No. 263 on Information Card-Last Page

Book Reviews

Procurement and Profit Renegotiation

Edited by J. Fred Weston Wadsworth Publishing Co. San Francisco, Calif.

This book grew out of a seminar which the University of California, Los Angeles, held in 1959. It incorporates a series of papers which treat all aspects of procurement and profit renegotiation. Thomas Coggeshall, chairman of the Renegotiation Board, discusses the basic principles of renegotiation in one chapter. Other chapters discuss business experience with renegotiation, procurement policies and practices and their relation to renegotiation, profit standards, and other topics. The book is naturally of particular interest to executives involved heavily in defense business. For such executives - particularly those in such sensitive areas as purchasing and materials management - it provides a lot of he'pful information.

Economics—An Introduction to Analysis and Policy, 3rd Ed.

By George Leland Bach Prentice-Hall

\$6.95

This is one of the best selling economics texts. Although it was written for elementary economics courses in universities, it would make an excellent reference for the purchasing executive who either didn't take economics in college or who took it so long that he has become a little rusty. There have been many changes in economic theory in recent years and Bach's text is up-to-date on theory. The book is easy to read and this edition includes a new chapter on managerial economics that should be of particular interest to purchasing executives.

Other chapters are also of special interest to purchasing executives. The chapters on price determination and monopolistic competition will be helpful to the purchasing executive who is intimately involved in price negotia-

(Please turn to page 176)



reject-reducing, cost-cutting INDIVIDUALIZED QUALITY CONTROL

Miller metallurgists make sure every bit of metal that leaves the Miller mills exactly meets all customer specifications. Your individual metal order is checked and rechecked at every stage of production . . . with the skill and care an old Bavarian brewmaster applies to his art. Each time you order metal you can be sure that everyone at Miller feels that his job isn't finished until that metal is in your plant, on your machines and completely satisfactory in every way. For expert technical help, meticulously produced high-grade metal and dependable delivery, place your next order for brass, bronze or nickel-silver strip, copper or copper-alloy tube in special shapes and sizes with the specialists at Miller . . . where you're a name, not just a number on the job ticket.

ROLLING MILL DIVISION



Tube Subsidiary

A. H. WELLS, INC.
Waterbury, Connecticut

For More Facts Write No. 264 on Information Card-Last Page



10134-FS

specify Fischer miniature turned nuts

Complex miniaturized components for the electrical/electronic industry pose critical assembly problems . . . problems that can be solved successfully with miniature turned nuts by Fischer! Produced with Fischer's exclusive customized equipment and advanced production techniques, these turned nuts meet and surpass existing industrial standards. Today, Fischer leads the fastener industry in fabricating miniatures to meet special requirements at competitive prices. Offering the ultimate in accuracy and uniformity, these nuts are tapped square to Class 2 and 3B tolerances in sizes ranging from ½" hex, including standard or custom sizes and shapes with special or standard threads from No. "O". Ask Fischer to quote prices and delivery on your next order for precision miniatures . . . you'll be glad you did!

WRITE TODAY FOR BULLETIN M-600

there's no premium for precision at



Fischer SPECIAL MANUFACTURING CO.

471 MORGAN STREET * CINCINNATI 6, OHIO
For More Facts Write No. 265 on Information Card—Last Page

Book Reviews

(Continued from page 175)

tion but who doesn't have the theoretical background to really understand how prices are set.

Staff in Organization

By Ernest Dale and Lyndall F. Urwick McGraw-Hill \$6.00

Traditionally, the basic jobs are done by the line organization. The staff organization exists to provide planning and various specialized services to help the line do a better job. Every executive is staff, line, or some combination. The purchasing executive is primarily staff; he provides basic service and counsel to the line organization, which is associated with sales or manufacturing in most companies.

As any veteran purchasing executive can testify, the problems of relations between staff and line are not easily solved. This book discusses the problem of staff and how it can do a better job. The role of the general staff man, the "assistant-to" is discussed in some detail. To determine how staff can be better used, the authors actually sat in the offices of several chief executives for days on end to determine how managers used their staffs.

Staff-type organization first came into wide use in the military (one of the earliest was the Prussian army general staff which was established about 100 years ago.) It was ideally suited to largescale organization - particularly military organizations which had to be rapidly expanded from a relatively small corps of professionals to many times its normal size in time of war. When the big corporation evolved in the twentieth century, managers found the staffand-line organization to be well suited to relieving some of the enormous work load that piled up on key executives in such corporations. As the authors point out, use of staff can create problems -not the least of which is dual subordination. Actual case histories show how top executives have overcome these difficulties to make effective use of their staffs.

Selection of finest raw materials

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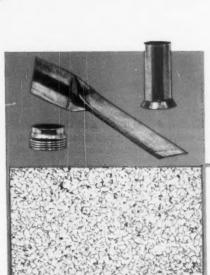
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Photographs show flare, flattening and crush tests performed continuously on every order. Non-destructive tests include air, water, magnetic, eddy current and visual inspection to insure 100% dependability.

Photomicrograph of polished and acidetched surface shows perfect microstructure of normalized Ohio Welded Pressure Tubing. Weld area running down the center is now indistinguishable and tube has become, in every sense, weldless.



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Representatives in principal cities. Check leading directories: THOMAS', MacRAE'S, CONOVER-MAST, SWEET'S, FRASER'S.

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A-4800



Purchasing Agent, "... purchasing fewer types of lubricants in greater volume lowers our costs."



Superintendent, "... simplifying anything, including lubrication, pays off in improved efficiency."

GULF MAKES THINGS RUN BETTER

These four men understand the real value of a simplified lubrication program. Why? Because a minimum number of lubricants makes their jobs a lot easier.

In some plants, Gulf engineers have found more than *three* times the number of lubes actually needed for efficient operation. This means three times as many ordering, billing, stocking and handling problems. And it also means three times as many chances for human errors.

Examples: One large electrical appliance manufacturer slashed lubricants from dozens to just 6. In addition, a well-known paper company pared lube brands from 39 to 13.

Here's what Gulf engineers can do for you: (1) they can relate their experiences with hundreds of lubricating problems to *your* specific needs, and (2) they can recommend these versatile Gulf[®] lubricants—Gulf Harmony[®] Oil, Gulfcrown[®] Grease



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Oiler, ". . . fewer lubes mean less chance for error, and I get the job done faster."

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Company.

Title

City_

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BETTER WELDING THROUGH ARCOS SERVICE



Technical assistance from Arcos will help you get the most economical and efficient application of weld metal. By training and experience, your Arcos representative is the man to bring you on-the-job assistance—when and where you need it—backed up by an Arcos team of technicians, researchers, metallurgists and engineers. Depend on your Arcos representative to supply you with the right filler metal for your job. For better welding call on Arcos technical service.



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Purchasing People

(Continued from page 52)

John V. Patton has been named plant manager and director of purchases of the W. W. Sly Manufacturing Company, Cleveland, Ohio. Howard Ash, formerly assistant purchasing agent, succeeds



John V. Patton

Mr. Patton as purchasing agent. Mr. Patton attended John Carroll University and Western Reserve University. He is a member of the Cleveland Purchasing Agents Association.

Two top purchasing department appointments were announced by The Eimco Corporation, Salt Lake City, Utah. John D. Reynolds, Jr. has been made general purchasing agent and Robert W. Mealiff purchasing agent-tractor loader division.

Mr. Reynolds was assistant pur-





John D. Reynolds, Jr. Robert W. Mealiff

chasing agent for the corporation. He is a graduate of Weber College and Utah State University. Mr. Mealiff was most recently in Eimco's engineering department. He started with the company fourteen years ago as a stock control clerk and then moved into purchasing.

Planned Packaging moves merchandise

For Today's Mass Packaging ...Purity with New Economy!

Packaging Corporation of America now introduces a new paperboard consisting of a homogeneous blend of virgin pulpwoods. Through advanced new techniques this revolutionary new product offers substantial economies and meets a wide range of packaging requirements.

New North-Brite Blended Paperboard is proving itself outstandingly as a more economical medium for packaging many products where quality characteristics, appearance and assured purity of raw material are essential.

Development of specialized processes for production of efficient, lower cost paperboards is but one of the countless ways in which Packaging Corporation's concept of Planned Packaging produces better packaging... more sales. Whether your requirements are large or small, regional or national, we welcome the opportunity to help you.



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June 19, 1961

THE AMPLEXOLOGIST.



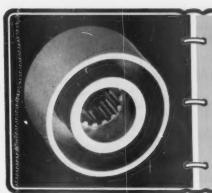
... STARTS FROM SCRAP

One thing about a scrap pile. You can walk around it. But you can't talk it away. That's why the Amplexologist—especially when he's calling on a manufacturer who knows little about powder metallurgy and cares less—often asks:

How much does it cost you to make this scrap?

Loaded question? Sure. Sometimes shakes a man up a little, too. Which is good: makes him more receptive to the word. Namely: advanced powder metallurgy uses only as much material as is necessary to produce a finished, precision part; a part which requires no machining and often costs no more than a rough casting. Eliminates waste material; eliminates the cost of *making* the waste. Often improves the product, too.

Well, once the message gets through—*m-o-n-e-y*—most manufacturers are eager for applications. Like, noon yesterday. Their enthusiasm for cutting out the scrap has helped make us the world's largest and most experienced producer of powder metal parts. Another reason leading manufacturers say: When it comes to powder metallurgy, Amplex has the answer.



STARTING FROM SCRAP ...

The part shown is a magnet body for an electro-magnetic clutch. Because of the required magnetic properties, uniform wall density is highly critical. Previously, therefore, it was necessary to machine the entire part. The Amplexologist, however, designed it to be produced as a finished, precision powder metal part which requires no machining; and through advanced density control held specified magnetic properties, even in the counterbore. Approximate saving, 94%.

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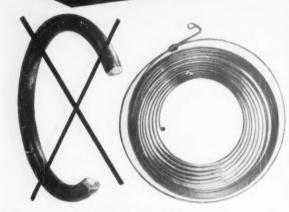


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CUT HANDLING and SHIPPING COSTS

They are Self-Contained by the two outer convolutions of the spring which are fastened together.

NO HOLDER TO HANDLE OR RETURN. LOWER WEIGHT CUTS SHIPPING COSTS.

Other advantages-

- · Safer, easier to install; both originally and replace-
- · Permits using different sizes of springs in same housing for different requirements.
- . Better, smoother spring action because "binding" friction is minimized; torque is more uniform.

For further details on the size you require, write or phone your nearest Sandvik office. For general information on these and other Sandvik Power Springs send for our new 12-page catalog.

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TRANSMISSION LININGS and special CLUTCH FACINGS

can help you solve design, performance and cost problems with this complete line

TRANSMISSION BAND LINING

Dry-mix, rigidmolded segments can be supplied flat or curved. with or without adhesive and with a variety of grooving patterns.



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Paper, cork, rubherthase or drymix friction material selected or compounded to meet your requirements and bonded to steel backing plates.



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Primarily dry-mix material especially compounded for power tools, home appliances, cameras and other precision devices as well as automotive and industrial equipment.



WORLD BESTOS is one of the few manufacturers that supplies a complete line of O.E.M. approved automatic transmission friction parts for all U.S.made automobiles. This unusually wide experience plus automated production gives you (1) the lowest possible cost commensurate with the quality required and (2) prompt delivery of special clutch facings and transmission linings that fit and perform



as specified. All WORLD BESTOS parts are precision pre-tested and scientifically proved. New four-page brochure No. 1051 lists parts and materials currently in production. For additional information and a copy of the brochure, write or call:

WORLD BESTOS NEW CASTLE, INDIANA PHONE: JACKSON 9-4790

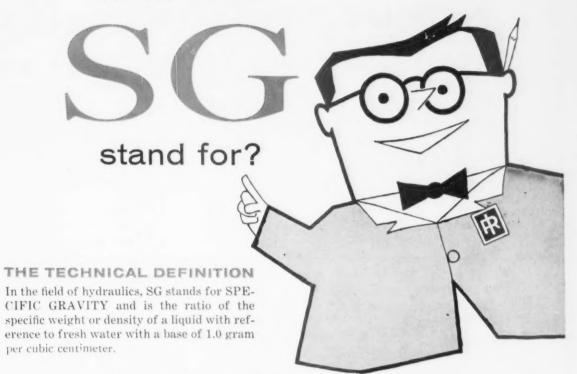
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when you discuss pumps what does



BUT THERE'S ANOTHER MEANING TOO

From a product standpoint Ingersoll-Rand also likes to think of SG as "SUPERIORITY GUARANTEED"...the extra value in design, workmanship and efficiency offered when an Ingersoll-Rand centrifugal pump is selected for your application.

If you are having a pumping problem why

not look into the added values of Ingersoll-Rand centrifugal pumps. Naturally our personnel are well aware of the effect of specific gravity on pump performance. There are pump specialists in every I-R branch office. Call them or see an authorized distributor of our complete commercial line of pumps.



Close-coupled Motorpumps ¼ through 75 hp—1, 2 and 4-stage models. Capacities to 3200 gpm—heads to 650 feet. Also available in self-priming models.



Cradle-mounted pumps 1/2 through 100 hp — 1 and 2-stage models. Capacities to 3200 gpm—heads to 525 ft. Also available in self-priming models.



Horizontally-split pumps 1½ through 400 hp-1 and 2-stage models. Capacities to 4000 gpm—heads to 1100 ft.



OTHER PUMPS TO 200,000 GPM-PRESSURES TO 6500 PSIG.

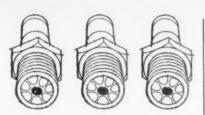
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The Porter Alloyist delivers the <u>right</u> alloy IN THE SPOTS THAT COUNT





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There can be no compromise in performance when there's a track record at stake. That's why the Porter Alloyist recommends special Inconel wire for stock car spark plug electrodes. It delivers high electrical conductivity with maximum resistance to erosion and corrosion by combustion gases.

THE PORTER ALLOYIST IS A SPECIALIST IN A WIDE RANGE OF SPECIAL METALS

Porter's Riverside-Alloy Metal Division is your single reliable source for specialty alloys in 8 basic groups of wire, rod and strip . . . phosphor bronze, nickel silver, cupro nickel, brass, stainless steel, nickel, Monel and Inconel.

Ask for a free copy of "Alloys for Industry" describing our wide range of specialty alloys. Write H. K. Porter Company, Inc., Riverside-Alloy Metal Division, Riverside, N. J. Or contact our sales offices in Hartford, Chicago, East Orange, Atlanta, Cleveland, Detroit, Cincinnati, Los Angeles and Rochester.



PORTER stainless steel, phosphor bronze, brass and other alloys serve in springs for many uses.

PORTER brass, nickel silver, Monel and phosphor bronze hold up under the stresses of cold heading operations.



RIVERSIDE-ALLOY METAL DIVISION
H. K. PORTER COMPANY, INC.

Managing Materials In a Small Company

(Continued from page 87)

Bowman is well-organized to find supply sources. Besides using standard directories he maintains an extensive vendor file of his own. It consists of 5 x 8" cards for each of the many commodities he buys. Under each item he lists possible suppliers and their specialties. A series of price cards provide him with purchase histories of the items he buys regularly.

As purchasing agent for a small company, Bowman likes to buy from the smaller suppliers. "They are more flexible and give better service," he says. "I know from our own experience at Wesel what we can do for a customer. I want our vendors to be able to do the

same."

Bowman likes to see salesmen and keeps a file of calling cards. "I depend a lot on salesmen," he says, "and I always see them at their convenience. They aren't around the area very often."

Bowman believes that salesmen are a good source of ideas, and help. "Although we purchasing agents know a lot about materials and products, salesmen are much more familiar with the details," he asserts. Bowman is one P.A. who would actually like more sales people to call on him. "This is one of the disadvantages of being small," he complains. "Salesmen tend to pass up the little fellows."

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					RECO.	į		

Wesels' purchase order is a four-part form. Purchasing's file copy has spaces for receiving and invoice data. Receiving department copy is used by both receiving and accounting. Bowman uses fourth copy for expediting.

Employment Service

SENIOR VALUE ANALYSTS

A heavy equipment manufacturer located on the Eastern seaboard has two immediate openings for selected individuals capable of establishing, maintaining and coordinating a plant value analysis program. Experience in preparing and presenting value analysis training and educational programs is desirable. The positions report directly to the corporate purchasing staff and offer excellent growth opportunities. Engineering degree preferred. and applicants should have between five and ten years experience with a minimum of two years in value analysis work. Write: Box 500.

Experience: Four years purchasing with AAA rated corporation, five years purchasing with a large college. Desire future employment in educational field.

Education: Two and one half years business college, bus. adm., graduate by certificate.

Will relocate. Write: Box 26

Experience: A knowledge of graphic arts and printing is my specialty. I will consider a staff position with a good, growing company. Experience in letter correspondence and writing is quite extensive, along with handling of bids and procurement. Top salary not essential as yet. Age—26.

Education: Three years of college and two years of graphic arts industrial education.

Will relocate. Write: Box 16

Experience: P. A.—presently responsible for complete purchasing program for multiplant printing operation. Thoroughly experienced in purchasing printing, graphic arts supplies, fine, coarse paper, ink, chemicals, bindery, outside production, furniture, equipment, scrap disposal, expediting material controls. Change to growth situation.

Education: College majors in marketing and management.

Will relocate. Write: Box 13 Experience: Three years buyer, six years assistant P.A., eight years production control-structural steel fabricating plant. Experienced all phases purchasing, inventory control, production problems. Seventeen years same firm. Age 36. Married Looking for new challenge with promising future.

Education: BBA degree—General busi-

Will relocate, but prefer South or Southwest. Write: Box 17

Experience: Eight years electronic (military & commercial) procurement with large international corporation. Well trained by start as expediter, assistant buyer, and buyer for past five years. Engineering buying of all electronic components from hardware to transistors. Initiated stock inventory control system still in use.

Education: Industrial electronics (two and one-half yrs.) Two years university bus. adm. Attending evening for degree.

Write: Box 18

Experience: Factory representative handling major distributors and accounts in Southwest. Strong industrial and food packaging knowledge. Organizational and sales promotion background. Family man, anxious to make change for better. Now employed by subsidiary of a giant in its field. Excellent references via reply.

Education: College, Eastern education, engineering and advertising.

Will relocate.

Write: Box 24

HOW TO APPLY

Listings in this department are offered without charge. Both purchasing department personnel interested in changing jobs and employers in search of replacement or additions to their departments may take advantage of this service. When writing, specify whether you want the applicant's form or the employer's form. Address all correspondence - whether for forms, or in answer to an employment advertisement, to: Box No. Employment Service Department, Purchasing Magazine, 205 East 42nd Street, New York.

Experience: Chemical and raw material purchasing. 2½ years in headquarters staff with large diversified corporation. Previous experience in chemical research production and development.

Education: B.S. Chemical Engineering. Will relocate.

Write: Box 46

Experience: Sixteen years experience in highly responsible managerial capacities, encompassing purchasing, administration, production, packaging and business engineering; last six years in purchasing. Seeking growth opportunity embracing wider responsibility. Age 37.

Education: B.B.A. (management)
Will relocate. Pacific coast only.

Write: Box 38

Experience: Five years P.A. on management level for manufacturer of electro mechanical systems and instruments. Heavy experience in bid analysis and preparation of complex quotations and estimating procedures. Supervision of inventory and materials control. Five years project management including design and selection of materials.

Education: Two years college, engineering and business management.

Will relocate. Write: Box 27

Experience: Presently employed as P.A. of large manufacturing company, administering all phases, functions and responsibilities of purchasing. Desirous of making a change. Nineteen years of previous employment in diversified positions that were relative to purchasing and management. Age: 38 years. Resume upon request.

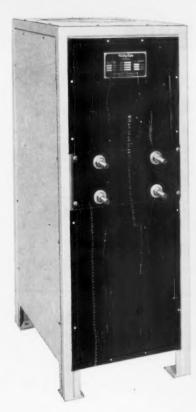
Education: Four years in company business training course.

Will relocate. In great southwest. Write: Box 21

Experience: Purchasing manager experienced in organizing system for procedures and controls. Possess instinct for working with vendors and company personnel. Presently employed by nationally known company engaged in the defense effort. Major experience in mechanical/electronic components and assemblies. Active participation on CPFF T&M and other cost type contracts.

Educaton: College, accounting back-ground.

Write: Box 19



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NEW DIODE ASSEMBLY has newly-designed, one-piece, solid copper, finned heat sink and improved, non-aging silicon diodes with ceramic insulation and individual fuse protection.

NEW VENTILATION SYSTEM with new fan-housing assembly and permanent, built-in baffling assures highest ventilation efficiency.

NEW, LOW HEIGHT saves space. D.C. terminals are located in same relative position, thus new bussing is not required for re-installation.

All transformers are full-load tested before and after re-manufacturing. It will pay you to investigate the many benefits of the Udylite Project Alert factory conversion program today. For conversion of other old-style Udylite Rectifiers to economical silicon units, contact your local Udylite Representative.

SILICON CONVERSION KITS—Udylite Silicon Diode Kits are also available for UV and UM rectifier conversion right in your plant. A specially fabricated heat sink assembly, complete with diodes and fuses, permits fast, easy installation.



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REALLY DUST-TIGHT

NEMA 5-12 construction keeps out dust and coolant. Positive door-closing mechanism assures complete seal before switch can be operated.

DOOR CLOSES SIMPLY and EASILY

No cover bolts to secure—just push door shut and turn door handle to close and seal.

EASY TO INSTALL

Through wiring with no interference from disconnect switch. Line terminals are at top, load terminals at bottom. Starters can be ganged with less than ½ inch between them.

WIDE RANGE OF SIZES

New Square D combination starter now available in NEMA Sizes O through 4.



3rd OVERLOAD RELAY

Space to add an additional overload relay when desired.



operated accidentally. CONVERTIBLE FUSE CLIPS

INTERLOCK

ON SWITCH

Optional single or

double-pole interlock

available to discon-

nect separate control

circuit power. Assures complete safety!

FOOL-PROOF

OPERATING

MECHANISM

Handle is permanent-

ly attached to switch

to eliminate hazard of false handle indication. With door open, the switch can not be

If horsepower or voltage requirements change, modification kits provide easy change of fuse clip size and spacing.

NEMA TYPE I ENCLOSURE ALSO AVAILABLE

NEMA Type 1 enclosures, offered in Sizes 0 through 4, can be modified by addition of a pushbutton, selector switch or other accessories. Easy-to-use kits simplify field installation.



Write for Bulletin SM-292. Address Square D Company,
Dept. SA, 4041 North Richards Street, Milwaukee 12, Wis.



SQUARE D COMPANY

wherever electricity is distributed and controlled



The Sign of a Real Bargain in an IRON BODY GATE

Cost-Per-Year is Lower... Initial Cost no Higher

For generations extra-quality, extra-stamina Jenkins Iron Body Gates were regarded as the best buy for the money ... even though they cost more to buy. Lower maintenance expense and extra years of service more than offset any price differential.

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bargain in true value. You pay no more for them at the start! And you get exactly the same high quality and perfection of design for your money.

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